1. Molba

NAUČNOM VEĆU INSTITUTA ZA FIZIKU

Predmet: Zahtev za pokretanje postupka za izbor u zvanje naučni savetnik

Molim Naučno veće Instituta za fiziku da u skladu sa Pravilnikom o postupku i načinu vrednovanja i kvantitativnom iskazivanju naučnoistraživačkih rezultata istraživača, pokrene postupak za moj **izbor u zvanje naučni savetnik.**

U Beogradu 17. 10. 2017.

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dr Darko Vasiljević, dipl. inž.

2. Saglasnost rukovodioca projekta

Naučnom veću
Instituta za fiziku

Predmet: *Pokretanje postupka za izbor dr Darka Vasiljevića u zvanje* ***naučni savetnik***

Predlažem Naučnom veću Instituta za fiziku da pokrene postupak za izbor dr Darka Vasiljevića u zvanje naučni savetnik jer zadovoljava sve potrebne uslove predviđene Pravilnikom o postupku i načinu vrednovanja i kvantitativnom iskazivanju naučnoistraživačkih rezultata istraživača.

Za članove komisije predlažem:

1. dr Dejan Pantelić naučni savetnik Instituta za fiziku u Beogradu
2. dr Branislav Jelenković naučni savetnik Instituta za fiziku u Beogradu i dopisni član SANU
3. prof dr Ivan Belča, redovni profesor Fizičkog fakulteta Univerziteta u Beogradu

U Beogradu 26. 10. 2017.

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Dr Branislav Jelenković
Naučni savetnik Instituta za fiziku u Beogradu
i rukovodilac projekta III 45016

3. Biografija

Darko Vasiljević rođen je 21.09.1960. godine u Beogradu. Osnovnu školu i gimnaziju završio je sa odličnim uspehom u Beogradu. U svim razredima osnovne škole i gimnazije učestvovao je na takmičenjima iz matematike i fizike gde je osvojio nagrade na gradskim takmičenjima i republičkom (iz fizike). Nosilac je diplome "Mihajlo Petrović Alas" za fiziku.

Mašinski fakultet Univerziteta u Beogradu je upisao školske 1979/80. godine i završio za devet semestara, sa srednjom ocenom 9.00. Diplomirao je 16.01.1984. godine sa ocenom 10. I po uspehu i po vremenu studiranja nalazio se među prvih deset studenata u svojoj generaciji. Na Mašinskom fakultetu izabrao je grupu za Vojno Mašinstvo i smer Raketno Naoružanje. Diplomski rad pod naslovom "Idejno rešenje za sistem za upravljanje vatrom za PT top 100 mm" je radio iz predmeta Optički uređaji. Težište rada je bilo na projektovanju i proračunu dnevnog optičkog nišana.

Poslediplomske studije upisao je školske 1984/85. godine na smeru za Vojno Mašinstvo. Sve ispite je dao do odlaska na odsluženje vojnog roka, septembra 1986. godine. Magistarski rad pod naslovom "Prilog optimizaciji projektovanja optičkih sistema pomoću mikroračunara" odbranio je 26.11.1990. godine na Mašinskom fakultetu u Beogradu.

U magistarskom radu izvršeno je istraživanje matematičkih metoda optimizacije optičkih sistema. Posle detaljne analize usvojena je metoda prigušenih najmanjih kvadrata i ona je prilagođena za optimizaciju optičkih sistema. Centralni deo magistarske teze čini razvoj programa za kompletno projektovanje i optimizaciju optičkih sistema **APOS** (**A**utomatsko **P**rojektovanje **O**ptičkih **S**istema). Program je interaktivan i korisnički orijentisan i sadrži sve potrebne elemente za projektovanje jednog optičkog sistema od definisanja polaznih podataka optičkog sistema, preko hoda zraka, proračuna Seidel-ovih aberacija trećeg reda, stvarnih aberacija, spot dijagrama, geometrijske i difrakcione modulacione prenosne funkcije (MTF). U programu je moguće grafičko predstavljanje optičkog sistema, njegovih aberacija, spot dijagrama, MTF i priprema script datoteka za prejektovanje mašinskih konstrukcija u AutoCAD-u. Važno mesto u projektovanju optičkih sistema ima i optimizacija optičkih sistema. U programu je omogućeno da korisnik projektant optičkih sistema ima neprekidnu kontrolu procesa optimizacije. Korisnik može da interaktivno menja granične uslove, odnosno da ih dodaje ili uklanja. On može da u toku optimizacije prelazi sa metode prigušenih najmanjih kvadrata sa prigušenjem sabiranjem na metodu sa prigušenjem množenjem.

Doktorsku disertaciju pod naslovom "Mogućnost primene genetskih algoritama u optimizaciji performansi simetričnih objektiva pasivnih nišanskih sprava" odbranio je 06.05.1998. godine na Mašinskom fakultetu u Beogradu.

Doktorska disertacija predstavlja prirodni nastavak istraživanja optimizacionih metoda započetih u magistarskoj tezi. Pošto su u magistarskoj tezi istražene klasične matematičke metode optimizacije optičkih sistema, u doktorskoj disertaciji su nastavljena istraživanja modernih optimizacionih metoda, koje su zasnovane na analogiji sa prirodnim pojavama (teorija evolucije, prirodna selekcija). Posle detaljnog sagledavanja izabrane su sledeće metode: adaptivni stacionarni genetski algoritam, dvočlane i višečlane evolucione strategije, koje su prilagođene za optimizaciju optičkih sistema. Ove metode su implementirane u postojeći program za projektovanje optičkih sistema **APOS**, tako da je bilo moguće porediti rezultate koji se dobijaju klasičnom optimizacijom pomoću metode najmanjih kvadrata i novih modernih optimizacionih metoda. Izvršen je veliki broj optimizacija pet različitih tipova objektiva (slepljeni duble ahromat, rastavljeni duble, Cookeov triple, Tessar i Petzval), koji se koriste u optičkim i optoelektronskim sistemima vojne namene. Rezultati su pokazali da optimizacione metode, zasnovane na evolucionim algoritmima, predstavljaju veoma moćno srestvo koje projektantu optičkih sistema omogućava više slobode u projektovanju dobrih optičkih sistema i u istraživanjima mogućih novih optičkih sistema.

Darko Vasiljević je bio zaposlen je u Vojnotehničkom Institutu od 01.04.1985. godine do 30.04.2005. godine, a od 01.05.2005. godine zaposlen je u Institutu za Fiziku. Njegova stručna, razvojna i naučna aktivnost usmerena je na oblast optičkih instrumenata, sistema za upravljanje vatrom i nišanskih sprava, a posebno na razvoj programa za automatizaciju projektovanja optičkih sistema. Radio je na većem broju zadataka na kojima je bio zadužen za projektovanje i optimizaciju optičkih sistema. Bio je nosioc zadatka Razvoj dnevnog optičkog nišana u okviru podsistema Naoružanja na projektu Model naoružanja i vojne opreme vojnika pešadije.
Naučno veće Vojnotehničkog instituta je na 30. sednici održanoj 01.10.1999. godine predložilo izabor Darka Vasiljevića u zvanje naučni saradnik. Izbor u zvanje naučni saradnik potvrdio je ministar odbrane. Naučno veće Vojnotehničkog instituta je na 55. sednici održanoj 27.05.2005. godine predložilo izbor Darka Vasiljevića u zvanje viši naučni saradnik. Izbor u zvanje viši naučni saradnik potvrdio je ministar odbrane.
Naučno – nastavno veće Vojne Akademije je na 8. sednici održanoj 11.02.2002. godine predložilo izabor Darka Vasiljevića u zvanje docent. Izbor u zvanje docent potvrdio je ministar odbrane. Naučno – nastavno veće Vojne Akademije je na 78. sednici održanoj 18.06.2009. godine predložilo izabor Darka Vasiljevića u zvanje vanredni profesor. Izbor u zvanje vanredni profesor potvrdio je ministar odbrane.
Zbog neusklađenosti u izbornim zvanjima u vojnim naučno – istraživačkim organizacijama i civilnim naučno – istraživačkim organizacijama Nastavno – naučno veće Mašinskog fakulteta Univerziteta u Beogradu, je na sednici održanoj 16.03.2006. godine predložilo izabor Darka Vasiljevića u zvanje naučni saradnik. Izbor je potvrdio ministar nauke. Nastavno - naučno veće Mašinskog fakulteta Univerziteta u Beogradu je na sednici održanoj 20.05.2010. godine predložilo izbor Darka Vasiljevića u zvanje viši naučni saradnik. Izbor je potvrdio ministar nauke.
Od dolaska u Institut za fiziku, Univerziteta u Beogradu, 01.05.2005. godine radio je na sledećim projektima:

- Razvoj i primena LIDAR-a za daljinsko praćenje aerosola u atmosferi koji finansira Ministarstvo za nauku i zaštitu životne sredine u okviru programa istraživanja u oblasti tehnološkog razvoja za period 2005. – 2007. godine na zadatu temu;
- Precizna laserska spektroskopija sa primenom na optičke zamke, interferometriju i optičku metrologiju, projekat br. 1443 u oblasti osnovnih istraživanja Ministarstva za nauku i zaštitu životne sredine za period od 2001. do 2005. godine;
- Kvantna i optička interferometrija, projekat br. 141003 u oblasti osnovnih istraživanja Ministarstva za nauku i tehnološki razvoj za period od 2006. do 2010. godine.
- Istraživanje klimatskih promena na životnu sredinu: praćenje uticaja, adaptacija i ublažavanje, projekat broj 43007 u oblasti integrisanih interdisciplinarnih istraživanja Ministarstva za prosvetu, nauku i tehnološki razvoj za period od 2011. do 2014. godine.
- Generisanje i karakterizacija nanofotonskih funkcionalnih struktura u biomedicini i informatici, projekat broj 45016 u oblasti integrisanih interdisciplinarnih istraživanja Ministarstva za prosvetu, nauku i tehnološki razvoj za period od 2011. do 2014. godine.

Na Vojnoj Akademiji od školske 2000/2001 godine redovno drži nastavu iz predmeta Optički uređaji i optoelektronika na studijskom programu Vojnomašinsko inženjerstvo modul naoružanje.
Na Fakultetu inženjerskih nauka Univerziteta u Kragujevcu od školske 2012/2013 godine redovno drži nastavu iz predmeta Optički i optoelektronski uređaji na studijskom programu Vojnoindustrijsko inženjerstvo modul naoružanje.
Na Mašinskom Fakultetu Univerziteta u Beogradu od školske 2001/2002 godine, redovno drži nastavu iz predmeta Optički uređaji i optoelektronika.
Za slušaoce iz Alžira na doktorskim i master studijama na Vojnoj Akademiji drži nastavu iz predmeta:

- doktorske studije: Optoelektronika, Projektovanje optičkih sistema, Optoelektronski senzori;
- master studije: Optički uređaji i optoelektronika.

Za slušaoce iz Ujedinjenih Arapskih Emirata na master studijama na Mašinskom fakultetu Univerziteta u Beogradu drži nastavu na engleskom jeziku iz predmeta: Theory of aberrations and image analisys i Optical devices and optoelectronics.
Na doktorskim studijama pri Univerzitetu u Beogradu iz Biofotonike predaje predmet Projektovanje savremenih optičkih sistema u biomedicini od 2015. godine.
Ukupno je objavio 101 rad i to:
- sedam radova u vrhunskom međunarodnom časopisu (M21);
- deset radova u istaknutom međunarodnom časopisu (M22);
- četiri rada u međunarodnom časopisu (M23);
- jedan rad u nacionalnom časopisu međunarodnog značaja (M24);
- jedno predavanje po pozivu na međunarodnom skupu (M31);
- petnaest saopštenja na međunarodnim skupovima štampanim u celini (M33);
- trinaest saopštenja na međunarodnim skupovima štampanim u izvodu (M34);
- dve monografije nacionalnog značaja (M42);
- jedno poglavlje u monografiji nacionalnog značaja (M45);
- osam radova u vodećem časopisu nacionalnog značaja (M51);
- dvanaest radova u časopisu nacionalnog značaja (M52);
- tri rada u naučnom časopisu (M53);
- šest saopštenja sa skupa nacionalnog značaja štampanih u celini (M63);
- deset saopštenja sa skupa nacionalnog značaja štampanih u izvodu (M64);
- dva univerzitetska udžbenika;
- jednu naučnu knjigu objavljenu u inostranstvu kod Kluwer Academic Publishers;
- pet radova sa ograničenom cirkulacijom.

Darko Vasiljević je mentor doktorantu iz Alžira na Vojnoj Akademiji koji je doktrorirao u martu 2017.
Darko Vasiljević je komentor sa prof dr Lasirom Blažić sa Medicinskog fakulteta Univerziteta u Novom Sadu dvema doktorantkinjama. Jedna je doktorirala a druga je u završnoj fazi izrade doktorata.
Darko Vasiljević je osnivač i član Optičkog društva Srbije i član Optical Society of America.
Darko Vasiljević je bio član organizacionog komiteta jedne međunarodne konferencije, predsednik organizacionog i programskog (naučnog) komiteta jedne domaće konferencije i predsednik organizacionog komiteta jedne domaće konferencije, član organizacionog komiteta jedne domaće konferencije.
Od 2012. godine Darko Vasiljević je predsednik Sindikalne organizacije Instituta za fiziku.
Za rad u VTI-u dobio je pohvale direktora Vojnotehničkog Instituta 1988., 1997. i 2001. godine.

4. Pregled naučne aktivnosti

Rad u Vojnotehničkom institutu 1985. – 2005. godine

Tokom dvadesetogodišnjeg naučnoistraživačkog rada u Vojnotehničkom institutu od 1985. do 2005. godine dr Darko Vasiljević je radio na poboljšanju postojećih i razvoju novih metoda projektovanja i optimizacije optičkih sistema. Kompletan rad u Vojnotehničkom institutu može se podeliti na tri oblasti koje se međusobno dopunjuju:

- projektovanje složenih optičkih sistema,
- razvoj programa za projektovanje analizu i optimizaciju optičkih sistema,
- klasične i evolucione metode optimizacije optičkih sistema.

Projektovanje složenih optičkih sistema

Od samog dolaska u Vojnotehnički institut 1985. godine dr Darko Vasiljević se bavio projektovanjem složenih optičkih i optoelektronskih nišanskih i osmatračkih sprava koje su ugrađivane sredstva naoružanja i vojne opreme koju je razvijao za potrebe naše armije Vojnotehnički institut.

Zbog poverljivosti svih ovih projekata samo manji broj rezultata je javno publikovan. Rezultati su objavljeni kroz radove u časopisu nacionalnog značaja. Deo rezultata zbog svoje poverljivosti je publikovan u radovima sa ograničenom cirkulacijom.

Razvoj programa za projektovanje, analizu i optimizaciju optičkih sistema

Savremeni način projektovanja optičkih sistema podrazumeva postojanje programa za projektovanje, analizu i optimizaciju optičkih sistema. Dr Darko Vasiljević od samog dolaska u Vojnotehnički institut 1985. godine bavio se razvojem programa za projektovanje optičkih sistema na svim računarima koje je u to vreme posedovao ili kasnije nabavio VTI. To su bili računari PDP 11/34 firme Digital Equipment Corporation, CYBER 170 model 720 firme Control Data Corporation, Hewlett Packard HP 9000 Technical workstation series 200 model 236 (HP 9836) i konačno IBM PC. Razvijeni programi su verifikovani kroz tehnička rešenja koja je usvojio Vojnotehnički Institut. Oni su takođe analizirani i upoređeni sa komercijalno dostupnim programima u radovima objavljenim u časopisu nacionalnog značaja.

Klasične i evlucione metode optimizacije optičkih sistema

Uporedo sa projektovanjem različitih tipova optičkih sistema dr Darko Vasiljević je krenuo da istražuje optimizacione metode koje bi se mogle koristiti pri projektovanju optičkih sistema. Prvo je istraživao različite varijante metode prigušenih najmanjih kvadrata. To je klasična metoda lokalne optimizacije koja je veoma efikasna u problemima optimizacije optičkih sistema. Dr Darko Vasiljević je razvio dve varijante metode prigušenih najmanjih kvadrata: sa prigušenjem sabiranjem i sa prigušenjem množenjem. U okviru programa APOS koji je dr Darko Vasiljević razvio omogućeno je interaktivno prelaženje sa jedne varijante na drugu varijantu metode prigušenih najmanjih kvadrata. Svoja istraživanja dr Darko Vasiljević je objavio u časopisu nacinalnog značaja.

Evoluciona optimizacija je jedan od mogućih načina poboljšanja metoda klasične optimizacije. Sve metode klasične optimizacije pripadaju metodama lokalne optimizacije pošto one garantuju pronalazak samo lokalnog minimuma najbližeg polaznoj tački. One eksplicitno ne uzimaju u obzir da možda postoji veliki broj lokalnih minimuma funkcije za ocenu u prostoru pretraživanja. Evoluciona optimizacija traži onoliko lokalnih minimuma koliko može da pronađe i bira najbolji među njima. Može se reći da evoluciona optimizacija pripada metodama globalne optimizacije. Razvijeni su sledeći tipovi evolucionih algoritama i primenjeni na optimizaciju optičkih sistema:

- Adaptivni stacionarni genetski algoritam (ASSGA); razvoj i primena u optimizaciji optičkih sistema objavljeni su u sledećim radovima: rad saopšten na skupu međunardnog značaja štampan u celini i rad objavljen u časopisu nacionalnog značaja. Veoma važno je naglasiti da je rad saopšten na skupu međunardnog značaja štampan u celini predstavljao prvu primenu genetskih algoritama u optimizaciji optičkih sistema i da je 25 puta citiran prema Google Scholar-u;
- Dvočlane evolucione strategije, metoda EVOL;
- Višečlane evolucione strategije, metode GRUP, REKO i KORR.

Rezultati razvoja i primene evolucionih strategija u optimizaciji optičkih sistema objavljeni su u sledećim radovima: naučnoj knjizi objavljenoj u inostranstvu, radu objavljenom u časopisu međunarodnog značaja, radu saopštenom na skupu međunardnog značaja štampanim u celini i radovima objavljenim u časopisu nacionalnog značaja. Bitno je naglasiti da je dr Darko Vasiljević prvi u svetskim razmerama uveo evolucione strategije u optimizaciju optičkih sistema. Zbog toga i objavljeni radovi su imali odgovarajuću citiranost: svi radovi su citirani 99 puta (84 bez autocitata) prema Google Scholar-u. Knjiga je citirana 35 put (32 puta bez autocitata) prema Google Scholar-u.

Rad u Institutu za fiziku 2005. – 2017. godine

Od dolaska u Institut za fiziku, Laboratoriju za optiku i lasere 2005. godine (sada Centar za fotoniku) dr Darko Vasiljević je radio na sledećim oblastima (po klasifikaciji matičnog odbora za fiziku):

- atomi, molekuli i kvantna optika,
- opšta i interdisciplinarna fizika.

U okviru navedenih oblasti bavio se sledećim problemima:

- proizvodnja i karakterizacija mikrosočiva;
- proračun i merenje deformacija i napona na zubima;
- razvoj realnog 3D modela zuba;
- razvoj LIDAR sistema za detekciju aerosola;

Proizvodnja i karakterizacija mikrosočiva

Mikrosočiva su sočiva malih dimenzija (od nekoliko desetina mikrometara do 1 mm u prečniku) i imaju veliku potencijalnu primenu u nauci i tehnologiji (kamere mobilnih telefona, medicinski uređaji, konfokalna mikroskopija). Mikrosočiva se proizvode osvetljavanjem sloja tot'hema i eozin senzibilisanog želatina (TESG) drugim harmonikom Nd:YAG lasera na 532 nm. Korišćen je i fokusiran i ne fokusiran laserski snop različite snage i različitog vremena ekspozicije.
Doprinos dr Darka Vasiljevića zajedničkim radovima bio je karakterizacija mikrosočiva i analiza kvaliteta lika koji formiraju mikrosočiva.

Proračun i merenje deformacija i napona na zubima

To je multidisciplinarno istraživanje koje se sprovodi zajedno sa koleginicama sa Medicinskog fakulteta Univerziteta u Novom Sadu. Osnovna ideja istraživanja je merenje deformacija u realnom vremenu pomoću holografske interferometrije.
Suština metode je u snimanju hologrma zuba i poklapanju hologrma sa samim zubom. Prilikom dejstva opterećenja na zub dolazi samo do deformacije pravog zuba, dok hologram ostaje nepromenjen. Kada se zub i hologram osvetle laserom dolazi do interferencije i prebrojavanjem interferencionih pruga i poznajući talasnu dužinu lasera lako se dolazi do deformacija zuba. Na ovaj način u realnom vremenu mogu se meriti deformacije zuba.
Sledeći korak nakon izmerenih deformacija zuba je formiranje matematičkog modela zuba. On je potreban da bi se moglo, u programu za metodu konačnih elemenata, proračunati napone koji se javljaju u zubu. U pricipu matematički medel zuba se može razviti na dva načina. Može se razviti

uprošćen matematički model zuba zasnovan na standardnim statističkim podacima o zubima. Drugi načim formiranje matematičkog modela realnog zuba.
Doprinos dr Darka Vasiljevića zajedničkim radovima bio je razvoj uprošćenog matematičkog modela zuba i proračun napona pomoću metode konačnih elemenata.

Razvoj realnog 3D modela zuba

Razvoj realnog 3D modela zuba je nastavak istraživanja iz perioda do izbora u zvanje viši naučni saradnik. U tom periodu naglasak je bio na merenju deformacija zuba u realnom vremenu pomoću holografske interferometrije. Da bi se moglo precizno računati opterećenje zuba i naponi u zubu bilo je neophodno razviti 3D model realnog zuba (gornjeg drugog premolara). Zub je skeniran pomoću kompjuterske tomografije (CT) i dobijen je veliki broj fotografija preseka zuba na osnovu kojih je razvijen 3D model zuba. Razvoj modela je vršen u programu za CAD projektovanje SolidWorks. Kada je završen razvoj 3D modela, program SolidWorks je omogućio proračun različitih napona metodom konačnih elemenata.
Doprinos dr Darka Vasiljevića zajedničkim radovima bio je razvoj readnog 3D modela zuba. Nakon skaniranja na CT-u dr Darko Vasiljević je razvio originalni program koji je omogućio da se svi dobijeni podaci prilagode za unos u program SolidWorks. dr Darko Vasiljević je razvio kompletan 3D model realnog zuba u programu SolidWorks. To je omogućilo da se veoma lako mogu analizirati različite situacije koje su od značaja za stomatologe (kao što su različiti oblici kaviteta, različita opterećenja, različiti postupci i materijali koji se koriste).

Razvoj LIDAR sistema za detekciju aerosola

LIDAR (**LI**ght **D**etection **A**nd **R**anging) je optički radar koji se može koristiti za ispitivanja zagađivača atmosfere. Princip rada LIDAR-a zasniva se na daljinskom praćenju (remote sensing) aerosola u atmosferi. LIDAR radi tako što detektuje elastično rasejano zračenje unazad na dve talasne dužine (1064 nm i 532 nm). Razlika rasejane svetlosti na dve talasne dužine omogućava određivanje veličine i vrste aerosola. LIDAR se obično koristi za daljinsko praćenje vertikalne raspodele i strukture slojeva aerosola u troposferi do visine 10 km i sa rezolucijom do 50 m.
U Institutu za fiziku je razvijen prototip LIDAR-a i njegov razvoj je prikazan u jednoj nacionalnoj monografiji i 5 radova u časopisu nacionalnog značaja. Institut za fiziku je izdao potvrdu da se razvoj LIDAR sistema može smatrati za bitno poboljšani postojeći proizvod ili tehnologija.
Razvoj domaćeg LIDAR sistema zasnovanog na rasejanju unazad laserskog zračenja prikazan je na predavanju po pozivu održanom u Magurele Rumunija na konferenciji Optoelectronic techniques for environmental monitoring - OTEM 2011 i tri saopštenja na konferencijama nacionalnog značaja.

Izabrani radovi u kojima je doprinos dr Darka Vasiljevića bio ključan

Do dolaska u Institut za fiziku dr Darko Vasiljević se bavio projektovanjem optičkih sistema. Nakon dolaska u Institut za fiziku nastavio je da se bavi optikom i priključio se grupi istraživača koja se bavila multidisciplinarnim istraživanjima koja su u sebi sadržala istraživanja iz fizike, medicine i biologije. Cilj svih istraživanja je bio razvoj eksperimentalnih metoda i teorijske verifikacije kroz razvoj matematičkih modela i simulacije pomoću metode konačnih elemenata.
Grupa multidisciplinarnih radova:

I rad

Kantardžić I., **Vasiljević D.**, Blažić L., Puškar T., Tasić M.: **Computed-tomography scan-based finite element analysis of stress distribution in premolars restored with composite resin,**
PHYSICA SCRIPTA T, Vol. 149 (2012) p. 014075-1 – 014075-4
Impakt faktor: 1.032 (2012) 48/83 Oblast: Physics Multidisciplinary Kategorija M22 5 bodova
SNIP 0.605 za 2012. godinu
ISSN 0031 – 8949

U toku funkcije žvakanja na zube i zubne ispune deluju sile različitog intenziteta i pravca. One u zubnim strukturama i stomatološkim materijalima uzrokuju pojavu unutrašnjih sila koje za posledicu imaju pojavu napona i deformacija koji mogu dovesti do velikih oštećenja zubnog tkiva. Zbog nemogućnosti merenja ovih pojava in vivo, u stomatološkim istraživanjima se sve češće koristi formiranje složenih matematičkih modela na osnovu realnih zuba. Saradnju je inicirao Medicinski fakultet Univerziteta u Novom Sadu a dr Darko Vasiljević je vodio saradnju isped Instituta za fiziku. On je uspeo da razvije model realnog zuba baziran na gornjem drugom premolaru koji je skeniran na kompjuterskoj tomografiji (CT). Dr Darko Vasiljević je na osnovu tih podatka i koristeći program koji je on razvio, uspeo da napravi model zuba u programu za 3D projektovanje SolidWorks. Napravljeni 3D model realnog zuba je osnova za sve vrste proračuna napona i deformacija metodom konačnih elemenata.

II rad

Kantardžić I., Vasiljević D., Blažić L., Lužanin O.: **Influence of cavity design preparation on stress values in maxillary premolar: a finite element analysis,** *CROATIAN MEDICAL JOURNAL*, Vol. 53 (2012), p. 568 – 576.
Impakt faktor: 1.250 (2012) 72/155 Oblast: Medicine General & Internal Kategorija M22 5 bodova
SNIP 0.985 za 2012. godinu
ISSN 0353-9504

Kada se jednom napravi realni 3D model zuba moguće je vršiti razne vrste eksperimenata tj. ispitivati različite vrste stomatoloških procedura u restauraciji zuba i ispitivati primenu različitih stomatoloških materijala. Za svaki zamišljeni eksperiment računaju se pomoću metode konačnih elemenata naponi i deformacije kako u zubnim strukturama (dentin, gleđ) tako i u različitim delovima zubne ispune. Rad I i rad II urađeni su tokom izrade doktorske disertacije Ivane Kantardžić. Dr Darko Vasiljević je kao komentor rukovodio komplentnim istraživanjima u periodu od 2011. godine do 2014. godine kada je Ivana Kantardžić doktorirala.

III rad

Pantelić D., Grujić D., **Vasiljević D.**,: **Single-beam, dual-view digital holographic interferometry for biomechanical strain measurements of biological objects,** *JOURNAL OF BIOMEDICAL OPTICS*, Vol. 19 (2014), No. 12, pp.127005-1 – 127005-10.
Impakt faktor: 2.752 (2013) 13/83 Oblast: Optics Kategorija M21 8 bodova
SNIP 1.372 za 2013. godinu
ISSN 1083-3668

Kada je uspešno razvijen 3D model realnog zuba i rešeni svi problemi sa proračunom napona i deformacija u zubnim strukturama i različitim delovima zubne ispune, dr Darko Vasiljević je u saradnji sa dr Dejanom Pantelićem i njegovim doktorantom Dušanom Grujićem uspešno razvio metodu digitalne holografske interferometrije. Ova metoda je omogućila merenje deformacija bioloških struktura. Za eksperimentalnu verifikaciju tačnosti digitalne holografske ineterferometrije korišćen je isti zub (gornji drugi premolar) jer je postojao razvijen 3D model i na osnovu njega su se računale deformacije.

Grupa radova iz optike:

IV rad

Vasiljević D., Murić B., Pantelić D., Panić B.: **Influence of TESG layer viscoelasticity on the imaging properties of microlenses,** *PHYSICA SCRIPTA T,* Vol. 149 (2012) p. 014070-1 – 014070-3
Impakt faktor: 1.032 (2012) 48/83 Oblast: Physics Multidisciplinary Kategorija M22 5 bodova
SNIP 0.605 za 2012. godinu
ISSN 0031 – 8949

Od dolaska u Institut za fiziku dr Darko Vasiljević se priključio grupi istraživača koja su se bavila istraživanjima u vezi sa mikrosočivima. Budući da se do dolaska u Institut za fiziku dr Darko Vasiljević bavio projektovanjem optičkih sistema i ocenom kvaliteta lika tih sistema bilo je logično da on preuzme na sebe karakterizaciju i ocenu kvaliteta lika koji formiraju mikrosočiva. Zato je on inicirao i vodio istraživanje uticaja raznih parametara u proizvodnji mikrosočiva na kvalitet lika koji formiraju ta mikrosočiva.

V rad

Bakić S., Vasiljević D.,: **Optimization of the double-Gauss objective with the various evolution strategies and the damped least squares,** *PHYSICA SCRIPTA T*, Vol. 162 (2014) p. 014034-1 – 014034-4
Impakt faktor: 1.296 (2013) 40/78 Oblast: Physics Multidisciplinary Kategorija M22 5 bodova
SNIP 0.636 za 2013. godinu
ISSN 0031 – 8949

Tema savremenih metoda optimizacije optičkih sistema je tema kojom se bavio od prvog dana kada se zaposlio. Kao rezultat toga su objavljena knjiga i radovi koji su citirani 80 puta bez autocita. Dr Darko Vasiljević je bio prvi u svetskim razmerama koji je, sredinom devesetih godina kada su genetski algoritmi i evolucione strategije bile u začetku, primenio te metode na optimizaciju optičkih sistema. Ovaj rad je rezultat saradnje sa studenkinjom doktorskih studija na Mašinskom fakultetu i deo je njene doktorske disertacije. Dr Darko Vasiljević je inicirao i vodi istraživanja i naravno biće mentor.

5. Elementi za kvalitativnu ocenu naučnog doprinosa

5.1. Pokazatelji uspeha u naučnom radu

5.1.1. Nagrade i priznanja za naučni rad

U svom dugogodišnjem naučno istraživačkom radu dr Darko Vasiljević je više puna nagrađivan i pohvaljivan. Na samom početku karijere 1985. godine, bio je jedini student Mašinskog fakulteta koji je dobio nagradu i za pripadnost grupi od 10 studenata sa najboljim prosekom ocena na studijama i za pripadnost grupi od 10 studenata koja su u najkraćem roku završila Mašinski fakultet. Rad u Vojnotehničkom Institutu u Beogradu je zbog dinamičnosti posla obilovao značajnim aktivnostima dr Darka Vasiljevića. Izuzetna zalaganja u projektovanju složenih optičkih i optoelektronskih sistema adekvatno su vrednovana i za svoj rad u Vojnotehničkom Institutu od 1985. godine do 2005. godine on je dobio tri pohvale direktora Vojnotehničkog Instituta: 1988., 1997. i 2001. godine.

5.1.2. Uvodna predavanja na konferencijama i druga predavanja po pozivu

Nakon prelaska u Institut za Fiziku 2005. godine dr Darko Vasiljević je ostvario blisku saradnju sa Istraživačkom stanicom Petnica gde je i održao predavanje po pozivu 14.05.2009. godine o savremenim optimizacionim metodama (genetskim algoritmima i evolucionim strategijama) primenjenim u optimizaciji optičkih sistema.

Tokom rada na razvoju LIDAR sistema održao je predavanje po pozivu na 5th Workshop on Optoectronic Techniques for Environmental Monitoring OTEM koji se održao od 28 do 30 septembra 2011. godine u Romian Atmospheric Opservatory u Magurele Rumunija.

Prilog: Pozivno pismo organizatora konferencije.

5.1.3. Članstvo u uređuvačkim odborima časopisa, uređivanje monografija, recenzije naučnih radova i projekata

Dr Darko Vasiljević je bio recenzent za sledeće časopise: Optics and lasers in Engineering, Engineering Applications of Artificial Intelligence, Journal of Lightwave technology, Journal of biomedical optics, Optics express, Journal of Micromechanics and Microengineering, Optical Engineering, Optical and Quantum Electronics, FME Transactions.

Prilozi: Elektronske poruke kojima se urednici časopisa zahvaljuju na obavljenoj recenziji.

5.2. Angažovanost u razvoju uslova za naučni rad, obrazovanju i formiranju naučnih kadrova

5.2.1. Pedagoški rad

Nastavna aktivnost dr Darka Vasiljevića se ogleda u:

- držanju kurseva u Vojnotehničkom institutu;
- držanju nastave na Vojnoj Akademiji;
- držanju nastave na Mašinskom fakultetu Univerziteta u Beogradu,
- držanju nastave na Fakultetu inženjerskih nauka Univerziteta u Kragujevcu.
- držanju nastave na doktorskim studijama pri Univerzitetu.

U Vojnotehničkom institutu u okviru kursa Principles of expert systems development, artificial neural networks and evolutionary computation držao je predavanja iz oblasti evoluciono računarstvo. Kurs je organizovan za slušaoce iz Libije tokom 1997. godine. Predavanja su održana na engleskom jeziku.

U Vojnotehničkom institutu u okviru Master studija za oficire Alžirskih oružanih snaga, u periodu od novembra 2008. godine do februara 2010. godine, održao je nastavu iz sledećih predmeta:

- Geometrijska optika,
- Teorija aberacija i analiza kvaliteta optičkih sistema,

- Teorija projektovanja optičkih sistema.

Na Vojnoj Akademiji od školske 2000/2001 godine redovno drži nastavu iz predmeta Optički i optoelektronski uređaji za studente VA OL, smer TSl, specijalnost Naoružanje,
Na Vojnoj Akademiji je od školske 2000/2001 godine do školske 2005/2006 godine držao je nastavu iz sledećih predmeta:

- Naoružanje, deo iz optičkih i optoelektronskih uređaja, za studente VA OL, smer TSl, specijalnosti Motori i motorna vozila, Ubojna bojeva sretstva i Pogon i zaštita,
- Konstrukcija naoružanja OMJ, deo iz optičkih i optoelektronskih uređaja, za studente VA OKoV, smer OMJ,
- Osnovi konstruisanja artiljerijskih sistema, deo iz optičkih i optoelektronskih uređaja, za studente VA OKoV, smer Artiljerija,
- Osnovi mehanike naoružanja, deo iz optičkih i optoelektronskih uređaja, za studente VA OKoV, smer Pešadija,
- Poznavanje i održavanje naoružanja, deo iz optičkih i optoelektronskih uređaja, za slušaoce ŠRO TSl.

Na Mašinskom Fakultetu u Beogradu od školske 2001/2002. godine drži nastavu iz predmeta Optički uređaji i optoelektronika za studente smera Vojno mašinstvo, odnosno Sistemi naoružanja.
Na Fakultetu inženjerskih nauka Univerziteta u Kragujevcu od školske 2012/2013 godine redovno drži nastavu iz predmeta Optički i optoelektronski uređaji na studijskom programu Vojnoindustrijsko inženjerstvo modul naoružanje.
Za slušaoce iz Alžira na doktorskim i master studijama na Vojnoj Akademiji drži nastavu iz predmeta:

- doktorske studije: Optoelektronika, Projektovanje optičkih sistema, Optoelektronski senzori;
- master studije: Optički uređaji i optoelektronika.

Za slušaoce iz Ujedinjenih Arapskih Emirata na master studijama na Mašinskom fakultetu Univerziteta u Beogradu drži nastavu na engleskom jeziku iz predmeta: Theory of aberrations and image analisys i Optical devices and optoelectronics.
Na doktorskim studijama pri Univerzitetu u Beogradu iz Biofotonike predaje predmet Projektovanje savremenih optičkih sistema u biomedicini.

5.2.2. Mentorstvo pri izradi magistarskih i doktorskih radova, rukovođenje specijalističkim radovima

Dr Darko Vasiljević je mentor na izradi jedne doktorske disertacije i komentor na izradi dve doktorske disertacije. Dr Darko Vasiljević je bio član ukupno 8 komisija za ocenu i odbranu doktorske disertacije i 4 komisije za ocenu i odbranu magistarske teze.

Mentorstvo u izradi doktorskih disertacija

Odlukom Vojne Akademije br 102-516 od 28.11.2014. godine dr Darko Vasiljević je imenovan za mentora poručnika Anis Redjimija iz NDR Alžir. Naslov doktorske disertacije je "Prostorno vremenska kalibracija sistema za analizu višekanalnih video i audio zapisa". Kapetan Anis Redjimi je doktorirao 21.03.2017. godine
Odlukom Medicinskog fakulteta Univerziteta u Novom Sadu br. 05-14/16 od 05.09.2011. godine dr Darko Vasiljević je imenovan za komentora (zajedno sa prof dr Larisom Blažić) dr Ivane Kantardžić. Naslov doktorske disertacije je "Uticaj restaurativnih procedura na biomehaničke karakteristike premolara - analiza realnog trodimenzionalnog modela primenom metode konačnih elemenata". Dr Ivana Kantardžić je doktorirala 31.10.2014. godine.
Odlukom Medicinskog fakulteta Univerziteta u Novom Sadu br. 05-14/12-2014 od 06.02.2014. godine dr Darko Vasiljevič je imenovan za komentora (zajedno sa prof dr Larisom Blažić) dr Tatjane Vukadinov. Naslov doktorske disertacije je "Uticaj endodonske instrumentacije i restaurativnih procedura na biomehaničke karakteristike endodonski lečenih premolara".
Prilozi: Odgovarajuće fotokopije rešenja o mentorstvu i učešću u komisijama.

5.2.3. Međunarodna saradnja

Odmah po prelasku u Institut za fiziku 2005. godine dr Darko Vasiljević se aktivno uključio u međunarodnu saradnju. Bio je jedan od nosilaca saradnje na međunarodnom bilateralnom projektu "**Daljinska detekcija aerosola pomoću LIDAR-a**" koji je realizovan na osnovu sporazuma o naučno – tehničkoj saradnji Slovenije i Srbije i Crne Gore u periodu od 01.01.2006. do 31.12.2007. godine. Ovaj projekat je usko povezan sa projektom istraživanja u oblasti tehnološkog razvoja "**Razvoj i primena LIDAR-a za daljinsko praćenje aerosola u atmosferi**" koji je finansirao Ministarstvo za nauku i tehnološki razvoj. Kao rezultat rada na ovim projektima razvijen je prototip backscatter LIDAR-a (LIDAR sa prihvatom rasejanog zračenja unazad) i napisano je 8 radova u domaćim časopisima, jedna monografija nacionalnog značaja i jedno predavanje po pozivu na međunarodnom skupu štampano u celini.

Dr Darko Vasiljević je aktivno učestvovao i na međunarodnom projektu "**Reinforcing the center for quantum and optical metrology**" koji je u okviru FP6 programa (EU Sixth Framework Programme) finansirala Evropska Komisija od 01.08.2006. do 01.08.2009. godine. U okviru projekta razvijene su dve laboratorije: jedna za holografsku interferometriju i druga za kvantnu optiku i lasersku spektroskopiju.

Dr Darko Vasiljević je aktivno učestvovao u pripremi i dobijanju međunarodnog projekta **SCOPES project – Modern optics and spectroscopy – from research to education**, koji finansira Swiss National Science Foundation. Projekat je trajao 36 meseci od 2010. godine do 2013. godine. Osnovni cilj projekta je bio razvoj složenih učila za potrebe nastave fizike na fakultetima. Dr Darko Vasiljević je učestvovao kao senior scientist na celokupnom projektu.

Dokazi: dokumenti, odnosno izjave rukovodioca projekta, iz kojih se vidi da je dr Darko Vasiljević bio učesnik na projektu.

5.2.4. Organizacija naučnih skupova

Dr Darko Vasiljević je bio:

- predsednik organizacionog odbora jedne nacionalne konferencije,
- predsednik programskog (naučnog) i organizacionog odbora jedne nacionalne konferencije,
- član programskog (naučnog) odbora jedne nacionalne konferencije,
- član organizacionog odbora jedne međunarodne konferencije.

Dr Darko Vasiljević je bio predsednik organizacionog odbora druge nacionalne konferencije Fotonika 2010 Teorija i eksperiment u Srbiji održane u Beogradu od 21. do 23. aprila 2010. godine,

Dr Darko Vasiljević je bio predsednik programskog (naučnog) i organizaciong odbora osme radionice iz fotonike koja se održala na Kopaoniku, od 08. do 12. marta 2015. godine,

Dr Darko Vasiljević je bio član organizacionog obora Devete radionice fotonike koja se održala na Kopaoniku, od 2 do 6 marta 2016. godine,

Dr Darko Vasiljević je bio predsednik organizaciong i član programskog odbora Tenth Photonics Workshop koja se održala na Kopaoniku, od 26. februara do 02. marta 2017. godine,

Dr Darko Vasiljević je član organizacionog odbora međunarodne konferencije 3rd Mediterranean Conference of Nano – photonics koja održala u Beogradu 18. i 19. oktobra 2010. godine.

Prilozi: Fotokopije stranica zbornka sa odgovarajućih konferencija sa kojih se vidi članstvo u navedenim odborima.

5.3. Organizacija naučnog rada

5.3.1. Rukovođenje naučnim projektima, podprojektima i zadacima

Dr Darko Vasiljević je od 2000. do 2004. godine bio rukovodilac istraživačko razvojnog projekta "Model naoružanja i vojne opreme vojnika pešadije, podsistem naoružanja, dnevni optički nišan" koji je finansiralo Ministarstvo odbrane. Rešenjem Generalštaba VSCG, Sektor KoV, Uprava Pešadije pov. br. 442-1 od 06.05.2004. godine usvojena je prototipska partija dnevnog optičkog nišana u naoružanje VSCG.

Rešenje je poverljive prirode i nije dostupno javnosti.
Dr Darko Vasiljević je 2011. i 2012. godine bio rukovodilac projektnog zadatka "Ispitivanje optičkih osobina rastegljivih sočiva" u okviru podprojekta "Holografski generisane fotonične i biomimetičke nano strukture" na projektu "Generisanje i karakterizacija nano-fotonskih funkcionalnih struktura u biomedicini i informatici", evidencioni broj projekta III45016 koji je finansira Ministarstvo prosvete nauke i tehnološkog razvoja. U okviru projektnog zadatka objavljen je jedan rad u istaknutom međunarodnom časopisu (M22).
Dokaz: dopis rukovodioca projekta kojim se potvrđuje da sa bio rukovodilac zadatka na projektu.

5.4. Kvalitet naučnih rezultata

Radovi dr Darka Vasiljevića na polju savremenih metoda optimizacije optičkih sistema dali su značajan doprinos kako domaćoj nauci tako i svetskoj nauci. Treba posebno istaći rad **Comparison of the classical dumped least squares and genetic algorithm in the optimization of the doublet** objavljen 1996. godine koji je bio prvi objavljeni rad u svetskim razmerama u kome je u optimizaciji optičkih sistema primenjena tada nova metoda optimizacije – genetski algoritami. Rad je prema Scopus-u citiran 25 puta, dok su svi radovi koji se bave primenom genetskih algoritama i evolucionih strategija u optimizaciji optičkih sistema citirani prema Google Scholar-u 99 puta, odnosno 84 puta bez autocitata.
Od dolaska u Institut za fiziku 2005. godine dr Darko Vasiljević je zajedno sa kolegama iz Centra za fotoniku objavio sedam radova u vrhunskim međunarodnim časopisima, a ukupno 21 rad u međunarodnim časopisima sa SCI liste. Ti radovi su citirani 134 puta prema Google Scholar-u.

5.4.1. Uticajnost naučnih radova kandidata

Rezultati istraživanja objavljeni u međunarodnim časopisima i knjigama citirani su prema Google Scholar ukupno 233 puta (od 2012. godine, (u zadnjih 5 godina) 110 puta). h-index dr Darka Vasiljevića je 8 (od 20012. godine 6). i10 indeks je 7 (od 2012. godine 2).
Tabela sa citiranošću prema Google Scholar-u, Scopus-u i ISI Web of Science:

	Google Scholar	Scopus	ISI web of science
Ukupan broj citata	233	94	52
Ukupan broj hetero citata	124	55	38
h index	8	6	5
i-10 index	7		

Sledeći radovi imaju više od 10 hetero citata:

- naučna knjiga **Classical and Evolutionary algorithms in the optimization of optical systems** citirana je 35 puta (32 puta bez autocitata);
- rad **Optimization of the Cooke triplet with the various evolution strategies and the damped least squares** citiran je 34 put (30 puta bez autocitata);
- rad **Comparison of the classical dumped least squares and genetic algorithm in the optimization of the doublet** citiran je 25 puta (21 put bez autocitata);

5.4.2. Pozitivna citiranost naučnih radova kandidata

Naučna knjiga **Classical and Evolutionary algorithms in the optimization of optical systems** citirana je 35 puta (32 puta bez autocitata). Svi radovi (25 radova) koje je dr Darko Vasiljević objavio do dolaska u Institut za fiziku citirani su po Google Scholaru 99 puta, odnosno 84 puta bez autocitata.
Svi radovi koje je dr Darko Vasiljević objavio od dolaska u Institut za fiziku (ukupno 76 radova od kojih je 21 rad objavljen u međunarodnim časopisima sa SCI liste) citirani su:

- po Google Scholaru 134 puta, odnosno 44 puta bez autocitata;
- po Scopus-u 69 puta, odnosno 30 puta bez autocitata;

- po ISI Web of Science 52 puta, odnosno 38 puta bez autocitata.

5.4.3. Ugled i uticajnost publikacija u kojima su objavljeni radovi kandidata

Časopisi u kojima je dr Darko Vasiljević publikovao radove kao jedan od koautora spadaju u sam vrh časopisa iz oblasti optike. U trenutku publikovanja rada, "**Real-time measurement of internal stress of dental tissue using holography"** 2007. godine, časopis *Optics Express* je bio časopis broj 2 od ukupno 64 časopisa u grupi za optiku. Radovi su objavljeni u: časopisu *Journal of biomedical optics* koji ima IF 2.752 i sedamnaesti je u grupi od osamdesetčetiri časopisa za optiku; časopisu *Lasers in surgery and medicine* koji ima IF 2.611 i četrdeseti je u grupi od dvestotinečetiri časopisa za hirurgiju.

5.4.4. Efektivni broj radova i broj radova normiran na osnovu broja koautora

Analizirajući strukturu objavljenih radova dr Darka Vasiljevića može se zaključiti da su objavljeni radovi do dolaska u Institut za fiziku 2005. godine uglavnom teorijskog karaktera i da su ili samostalni radovi ili sa još jednim koautorom. Od dolaska u Institut za fiziku svi objavljeni radovi su vezani za eksperimentalna istraživanja uz jasno definisane osnovne teorijske postulate.

5.4.5. Stepen samostalnosti u naučnoistraživačkom radu i uloga u realizaciji radova u naučnim centrima u zemlji i inostranstvu

Do dolaska u Institut za fiziku 2005. dr Darko Vasiljević se bavio istraživanjima u oblasti projektovanja i optimizacije optičkih sistema. U periodu od 1991. godine do 2005. godine ukupno je objavio 21 rad.

Dr Darko Vasiljević je bio jedini autor na sledećih devet radova:

- naučnoj knjizi **Classical and Evolutionary algorithms in the optimization of optical systems**;
- univerzitetskom udžbeniku **Optički uređaji i optoelektronika**;
- 7 radova objavljenih u časopisu nacionalnog značaja (M52);

Dr Darko Vasiljević je bio prvi autor na sledećih osam radova:

- 1 rad objavljen u časopisu međunarodnog značaja verifikovan posebnom odlukom (M24);
- 3 rada koja su objavljena kao saopštenja sa međunarodnog skupa i štampana u cedlini (M33);
- 1 rad objavljen u časopisu nacionalnog značaja (M52);
- 2 rada objavljena u naučnom časopisu (M53);
- 1 rad koji je objavljen kao saopštenje sa skupa nacionalnog značaja štampano u celini (M63).

Posle dolaska u Institut za fiziku 2005. dr Darko Vasiljević se bavio istraživanjima u oblasti holografije, biomedicine i razvojem sistema LIDAR za detekciju aerosola. Objavio je ukupno 2 domaće monografije, 1 poglavlje u domaćoj monografiji i 73 rada (27 radova od dolaska u Institut za fiziku do izbora u zvanje viši naučni saradnik i 46 nakon izbora u zvanje viši naučni saradnik) i od toga je bio prvi autor na sledećih dvanaest radova:

- 2 rada objavljena u istaknutom međunarodnom časopisu (M22);
- 2 rada objavljena u međunarodnom časopisu (M23);
- 1 rad objavljen u časopisu međunarodnog značaja verifikovan posebnom odlukom (M24);
- 1 rad - saopštenje sa međunarodne konferencije štampano u celosti (M33);
- 2 rada - saopštenje sa međunarodne konferencije štampano u izvodima (M34);
- 2 rada objavljena u časopisu nacionalnog značaja (M52);
- 1 rad - saopštenje sa skupa nacionalnog značaja štampano u celini (M63);
- 2 rada - saopštenje sa skupa nacionalnog značaja štampano u izvodu (M64).

Od dolaska u Institut za fiziku 2005. godine dr Darko Vasiljević se priključio grupi istraživača koja se bavi multidisciplinarnim istraživanjima. Grupa se sastoji od fizičara, inženjera elektrotehnike i

mašinstva, biologa i stomatologa. Objavljeni radovi su plod njihovih zajedničkih istraživanja u kojima se svaki član tima imao svoje obaveze i svoju oblast istraživanja.
U radovima o mikrosočivima oblast koju je pokrivao dr Darko Vasiljević je karakterizacija mikrosočiva i analiza kvaliteta lika koji formiraju mikrosočiva.
U radovima sa stomatolozima oblast interesovanja dr Darka Vasiljevića je formiranje 3D modela na osnovu realnog zuba i proračun metodom konačnih elemenata složenih naprezanja koja se javljaju u zubu.

6. Elementi za kvantitativnu ocenu naučnog doprinosa

6.1. Ostvareni rezultati u periodu nakon prethodnog izbora u zvanje

Kategorija	M bodova po radu	Broj radova	Ukupno M bodova
M21	8	3	24
M22	5	7	35
M23	3	1	3
M24	2	1	2
M31	3.5	1	3.5
M33	1	8	8
M34	0.5	12	6
M51	2	3	6
M52	1.5	2	3
M63	1	1	1
M64	0.2	7	1.4

Tabela sa radovima kategorije M20 objavljenim nakon prethodnog izbora u zvanje

R.b. članka (Č)	Broj koautora (A)	M	M/A	IF	IF/A	SNIP	SNIP/A
1	9	8	0.889	3.00	0.333	1.584	0.176
2	3	8	2.667	2.752	0.917	1.372	0.457
3	4	8	2	2.212	0.553	1.286	0.322
4	4	5	1.25	1.250	0.313	0.985	0.246
5	5	5	1	1.032	0.206	0.605	0.121
6	4	5	1.25	1.032	0.258	0.605	0.151
7	6	5	0.833	1.296	0.216	0.636	0.106
8	7	5	0.714	1.296	0.185	0.636	0.091
9	2	5	2.5	1.296	0.648	0.636	0.318
10	6	5	0.833	1.290	0.215	0.668	0.111
11	7	3	0.429	0.194	0.028	0.072	0.010
		ΣM=62	ΣM/A=14.365	ΣIF=16.650	ΣIF/A=3.872	ΣSNIP=9.085	ΣSNIP/A=2.109
		ΣM/Č=5.636		ΣIF/Č=1.514		ΣSNIP/Č=0826	

Tabela sa ostalim radovima objavljenim nakon prethodnog izbora u zvanje

R.b. članka (Č)	Kategorija	Broj koautora (A)	M	M/A
1.	M24	5	2	0.4
2.	M31	9	3.5	0.389
3.	M33	4	1	0.25
4.	M33	4	1	0.25
5.	M33	6	1	0.167
6.	M33	2	1	0.5
7.	M33	3	1	0.333
8.	M33	5	1	0.2
9.	M33	6	1	0.167
10.	M33	9	1	0.111
11.	M34	7	0.5	0.071
12.	M34	4	0.5	0.125
13.	M34	5	0.5	0.1
14.	M34	8	0.5	0.063
15.	M34	4	0.5	0.125
16.	M34	4	0.5	0.125
17.	M34	3	0.5	0.167
18.	M34	3	0.5	0.167
19.	M34	3	0.5	0.167
20.	M51	4	2	0.5
21.	M51	5	2	0.4
22.	M51	6	2	0.333
23.	M52	7	1.5	0.214
24.	M52	4	1.5	0.375
25.	M63	3	1	0.333
26.	M64	5	0.2	0.04
27.	M64	5	0.2	0.04
28.	M64	7	0.2	0.029
29.	M64	4	0.2	0.05
30.	M64	5	0.2	0.04
31.	M64	6	0.2	0.033
32.	M64	6	0.2	0.033
			ΣM=29.4	ΣM/A=6.297
			ΣM/Č=0.919	

6.2. Poređenje sa minimalnim kvantitativnim uslovima za izbor u zvanje naučni savetnik

Minimalan broj bodova			Ostvareno
Izbor naučni savetnik	Ukupno	70	93.9
	M10+M20+M31+M32+M33+M41+M42+M90 ≥	50	75.5
	M21+M22+M23+M24+M31+M32 ≥	35	67.5

6.3. Citiranost

Rezultati istraživanja objavljeni u međunarodnim časopisima i knjigama citirani su prema Google Scholar ukupno 233 puta (od 2012. godine, (u zadnjih 5 godina) 110 puta). h-index dr Darka Vasiljevića je 8 (od 20012. godine 6). i10 indeks je 7 (od 2012. godine 2).

Tabela sa citiranošću prema Google Scholar-u, Scopus-u i ISI Web of Science:

	Google Scholar	Scopus	ISI web of science
Ukupan broj citata	233	94	52
Ukupan broj hetero citata	124	55	38
h index	8	6	5
i-10 index	7		

Sledeći radovi imaju više od 10 hetero citata:

- naučna knjiga **Classical and Evolutionary algorithms in the optimization of optical systems** citirana je 35 puta (32 puta bez autocitata);
- rad **Optimization of the Cooke triplet with the various evolution strategies and the damped least squares** citiran je 34 put (30 puta bez autocitata);
- rad **Comparison of the classical dumped least squares and genetic algorithm in the optimization of the doublet** citiran je 26 puta (22 put bez autocitata).

7. Spisak obljavljenih radova po kategorijama

7.1. Radovi u vrhunskim međunarodnim časopisima – kategorija M21

7.1.1. Radovi objavljeni nakon prethodnog izbora u zvanje:

1. Krmpot A., Janjetović K., Misirkić M., Vučićević Lj., Pantelić D., **Vasiljević D.**, Popadić D., Jelenković B., Trajković V.: **Protective Effect of Autophagy in Laser-Induced Glioma Cell Death In Vitro,** *LASERS IN SURGERY AND MEDICINE,* Vol. 42 (2010), p. 338 – 347.
Impakt faktor: 3.000 (2010) 25/188 Oblast: Surgery Kategorija M21 8 bodova
SNIP 1.584 za 2010. godinu
ISSN 0196-8092
Ukupan broj citata: ISI Web of Science 6, Scopus 7, Google Scholar 11
Hetero citati: ISI Web of Science 5, Scopus 7, Google Scholar 9

2. Pantelić D., Grujić D., **Vasiljević D.**,: **Single-beam, dual-view digital holographic interferometry for biomechanical strain measurements of biological objects,** *JOURNAL OF BIOMEDICAL OPTICS*, Vol. 19 (2014), No. 12, pp.127005-1 – 127005-10.
Impakt faktor: 2.752 (2013) 13/83 Oblast: Optics Kategorija M21 8 bodova
SNIP 1.372 za 2013. godinu
ISSN 1083-3668
Ukupan broj citata: ISI Web of Science 3, Scopus 3, Google Scholar 3
Hetero citati: ISI Web of Science 3, Scopus 3, Google Scholar 3

3. Murić B., Pantelić D., **Vasiljević D.**, Savić-Šević S.:**Application of tot'hema eosin sensitized gelatin as a potential eye protection filter against direct laser radiation,** *CURRENT APPLIED PHYSICS*, Vol. 16 (2016), pp.57 – 62. http://dx.doi.org/10.1016/j.cap.2015.09.014
Impakt faktor: 2.212 (2014) 74/260 Oblast: Physics Applied Kategorija M21 8 bodova
SNIP 1.286 za 2014. godinu
ISSN 1567 – 1739
Ukupan broj citata: ISI Web of Science 2, Scopus 2, Google Scholar 2
Hetero citati: ISI Web of Science 2, Scopus 2, Google Scholar 2

7.1.2. Radovi objavljeni pre prethodnog izbora u zvanje:

1. Murić B., Pantelić D., **Vasiljević D.**, Panić B.: **Properties of microlenses produced on a layer of tot'hema and eosin sensitized gelatin,** *APPLIED OPTICS,* Vol. 46 (2007), No. 35, p. 8527 – 8532.
Impakt faktor: 1.701 (2007) 18/64 Oblast: Optics Kategorija M21 8 bodova
SNIP 1.613 za 2007. godinu
ISSN 0003 – 6935
Ukupan broj citata: ISI Web of Science 10, Scopus 10, Google Scholar 12
Hetero citati: ISI Web of Science 2, Scopus 2, Google Scholar 2

2. Murić B., Pantelić D., **Vasiljević D.**, Panić B.: **Microlens fabrication on a tot'hema sensitized gelatin,** *OPTICAL MATERIALS*, Vol. 30 (2008), pp.1217 – 1220.
Impakt faktor: 1.714 (2008) 20/64 Oblast: Optics Kategorija M21 8 bodova
SNIP 1.325 za 2008. godinu
ISSN 0925 – 3467
Ukupan broj citata: ISI Web of Science 7, Scopus 8, Google Scholar 9
Hetero citati: ISI Web of Science -, Scopus -, Google Scholar -

3. Pantelić D., Blažić L., Savić-Šević S., Murić B., **Vasiljević D.**, Panić B., Belić I.: **Real-time measurement of internal stress of dental tissue using holography,** *OPTICS EXPRESS*, Vol. 15 (2007), No. 11, p. 6823 – 6830.
Impakt faktor: 3.709 (2007) 2/64 Oblast: Optics Kategorija M21 8 bodova

SNIP 2.032 za 2007. godinu
ISSN 1094 – 4087
Ukupan broj citata: ISI Web of Science 7, Scopus 7, Google Scholar 15
Hetero citati: ISI Web of Science 3, Scopus 3, Google Scholar 5
4. Murić B., Pantelić D., **Vasiljević D.**, Panić B., Jelenković B.: **Thermal analysis of microlens formation on a sensitized gelatin layer**, *APPLIED OPTICS,* Vol. 48 (2009), No. 19, 3854 – 3859.
Impakt faktor: 1.763 (2008) 18/64 Oblast: Optics Kategorija M21 8 bodova
SNIP 1.711 za 2007. godinu
ISSN 0003 – 6935
Ukupan broj citata: ISI Web of Science 5, Scopus 5, Google Scholar 5
Hetro citati: ISI Web of Science -, Scopus -, Google Scholar -

7.2. Radovi u istaknutom međunarodnom časopisu – kategorija M22

7.2.1. Radovi objavljeni nakon prethodnog izbora u zvanje:

1. Kantardžić I., Vasiljević D., Blažić L., Lužanin O.: **Influence of cavity design preparation on stress values in maxillary premolar: a finite element analysis,** *CROATIAN MEDICAL JOURNAL*, Vol. 53 (2012), p. 568 – 576.
Impakt faktor: 1.250 (2012) 72/155 Oblast: Medicine General & Internal Kategorija M22 5 bodova
SNIP 0.985 za 2012. godinu
ISSN 0353-9504
Ukupan broj citata: ISI Web of Science 3, Scopus 6, Google Scholar 13
Hetero citati: ISI Web of Science 3, Scopus 6, Google Scholar 12
2. Kantardžić I., **Vasiljević D.**, Blažić L., Puškar T., Tasić M.: **Computed-tomography scan-based finite element analysis of stress distribution in premolars restored with composite resin,** *PHYSICA SCRIPTA T*, Vol. 149 (2012) p. 014075-1 – 014075-4
Impakt faktor: 1.032 (2012) 48/83 Oblast: Physics Multidisciplinary Kategorija M22 5 bodova
SNIP 0.605 za 2012. godinu
ISSN 0031 – 8949
Ukupan broj citata: ISI Web of Science 2, Scopus 2, Google Scholar 4
Hetero citati: ISI Web of Science -, Scopus -, Google Scholar –
3. Vasiljević D., Murić B., Pantelić D., Panić B.: **Influence of TESG layer viscoelasticity on the imaging properties of microlenses,** *PHYSICA SCRIPTA T,* Vol. 149 (2012) p. 014070-1 – 014070-3
Impakt faktor: 1.032 (2012) 48/83 Oblast: Physics Multidisciplinary Kategorija M22 5 bodova
SNIP 0.605 za 2012. godinu
ISSN 0031 – 8949
Ukupan broj citata: ISI Web of Science -, Scopus -, Google Scholar –
Hetero citati: ISI Web of Science -, Scopus -, Google Scholar –
4. Pantelić D., **Vasiljević D.**, Blažić L., Savić-Šević S., Murić B., Nikolić M.: **Biomechanical model produced from light-activated dental composite resins: a holographic analysis,** *PHYSICA SCRIPTA T*, Vol. 157 (2013) p. 014021-1 – 014021-5
Impakt faktor: 1.296 (2013) 40/78 Oblast: Physics Multidisciplinary Kategorija M22 5 bodova
SNIP 0.636 za 2013. godinu
ISSN 0031 – 8949
Ukupno citata: ISI Web of Science -, Scopus -, Google Scholar –
Hetero citati: ISI Web of Science -, Scopus -, Google Scholar -
5. Murić B., Pantelić D., **Vasiljević D.**, Zarkov B., Jelenković B., Pantović S., Rosić M.: **Sensitized gelatin as a versatile biomaterial with tailored mechanical and optical properties,** *PHYSICA SCRIPTA T*, Vol. 157 (2013) p. 014018-1 – 014018-4
Impakt faktor: 1.296 (2013) 40/78 Oblast: Physics Multidisciplinary Kategorija M22 5 bodova

SNIP 0.636 za 2013. godinu
ISSN 0031 – 8949
Ukupno citata: ISI Web of Science 1, Scupus 1, Google Scholar 1
Hetero citati: ISI Web of Science -, Scopus -, Google Scholar –
6. Bakić S., **Vasiljević D.**,: **Optimization of the double-Gauss objective with the various evolution strategies and the damped least squares,** *PHYSICA SCRIPTA T*, Vol. 162 (2014) p. 014034-1 – 014034-4
Impakt faktor: 1.296 (2013) 40/78 Oblast: Physics Multidisciplinary Kategorija M22 5 bodova
SNIP 0.636 za 2013. godinu
ISSN 0031 – 8949
Ukupno citata: ISI Web of Science -, Scopus -, Google Scholar –
Hetero citati: ISI Web of Science -, Scopus -, Google Scholar –
7. Knežević D., Redjimi A., Mišković K., **Vasiljević D.**, Nikolić Z., Babić J.: **Minimum resolvable temperature difference model, simulation, measurement and analysis,** *OPTICAL AND QUANTUM ELECTRONICS*, Vol. 48 (2016) p. 332-1 – 332-7 DOI 10.1007/s11082-016-0598-7
Impakt faktor: 1.290 (2015) 54/90 Oblast: Optics Kategorija M22 bodova
SNIP 0.668 za 2015. godinu
ISSN 0306 – 8919
Ukupno citata: ISI Web of Science -, Scopus -, Google Scholar 1
Hetero citati: ISI Web of Science -, Scopus 1, Google Scholar 1

7.2.2. Radovi objavljeni pre prethodnog izbora u zvanje:

1. **Vasiljević D.**, Murić B., Pantelić D., Panić B. **Influence of chemical processing on imaging properties of microlenses**, *PHYSICA SCRIPTA T*, Vol. 135 (2009) doi:10.1088/0031-8949/2009/T135/014047
Impakt faktor: 0.970 (2008) 36/68 Oblast: Physics Multidisciplinary Kategorija M22 bodova
SNIP 0.517 za 2008. godinu
ISSN 0031 – 8949
Ukupno citata: ISI Web of Science 1, Scopus 1, Google Scholar 1
Hetero citati: ISI Web of Science -, Scopus -, Google Scholar –
2. Pantelić D., Savić-Šević S., **Vasiljević D.**, Murić B., Blažić L., Nikolić M., Panić B. **Holographic Measurement of a Tooth Model and Dental Composite Contraction,** MATERIALS AND MANUFACTURING PROCESSES, 2009, Vol. 24, 1142 – 1146.
Impakt faktor: 0.612 (2007) 19/38 Oblast: Engineering Manufacturing Kategorija M22 5 bodova
SNIP 0.716 za 2007. godinu
ISSN 1042 – 6914
Ukupno citata: ISI Web of Science 3, Scopus 3, Google Scholar 5
Hetero citati: ISI Web of Science 2, Scopus -, Google Scholar 2

7.3. Radovi objavljeni u međunarodnom časopisu – kategorija M23

7.3.1. Radovi objavljeni nakon prethodnog izbora u zvanje:

1. Puškar T., **Vasiljević D.**, Marković D., Jevremović D., Pantelić D., Savić-Šević S., Murić B.: **Formiranje trodimenzionalnog matematičkog modela zuba metodom konačnih elemenata,** *SRPSKI ARHIV ZA CELOKUPNO LEKARSTVO,* Vol. 138 (2010), No. 1-2, p. 19-25.
Impakt faktor: 0.194 (2010) 137/153 Oblast: Medicine General & Internal Kategorija M23 3 boda
SNIP 0.072 za 2010. godinu
ISSN 0587 – 4246
Ukupan broj citata: ISI Web of Science 1, Scopus -, Google Scholar 4
Hetero citati: ISI Web of Science 1, Scopus -, Google Scholar 3

7.3.2. Radovi objavljeni pre prethodnog izbora u zvanje:

1. **Vasiljević D.**, Murić B., Pantelić D., Panić B.: **Imaging Properties of Laser-Produced Parabolic Profile Microlenses,** *ACTA PHYSICA POLONICA A,* Vol. 112 (2007), No. 5, p. 993 – 999.
Impakt faktor: 0.340 (2007) 60/69 Oblast: Physics Multidisciplinary Kategorija M23 3 boda
SNIP 0.449 za 2007. godinu
ISSN 0587 – 4246
Ukupn broj citata: ISI Web of Science 4, Scopus 4, Google Scholar 4
Hetero citati: ISI Web of science -, Scopus -, Google Scholar -
2. Pantelić D., Blažić L., Savić-Šević S., Murić B., **Vasiljević D.**, Panić B., Belić I.: **Holographic Measurement of Dental Tissue Contraction and Stress, due to Postpolymerization Reaction,** *ACTA PHYSICA POLONICA A,* Vol. 112 (2007), No. 5, p. 1157 – 1160.
Impakt faktor: 0.340 (2007) 60/69 Oblast: Physics Multidisciplinary Kategorija M23 3 boda
SNIP 0.449 za 2007. godinu
ISSN 0587 – 4246
Ukupan broj citata: ISI Web of Science -, Scopus 3, Google Scholar 7
Hetero citati: ISI Web of Science -, Scopus 2, Google Scholar 3
3. **Vasiljević D.**, Murić B., Pantelić D., Panić B. **Aberrations of Betanin Sensitized Gelatin Microlenses**, *ACTA PHYSICA POLONICA A,* Vol. 116 (2009), No. 4, p. 592 – 594.
SNIP 0.449 za 2007. godinu
Impakt faktor: 0.433 (2009) 60/71 Oblast: Physics Multidisciplinary Kategorija M23 3 boda
ISSN 0587 – 4246
Ukupan broj citata: ISI Web of Science 1, Scopus 1, Google Scholar 1
Hetero citati: ISI Web of Science 1, Scopus 1, Google Scholar 1

7.4. Radovi objavljeni u nacionalnom časopisu međunarodnog značaja – kateorija M24

7.4.1. Radovi objavljeni nakon prethodnog izbora u zvanje:

1. Pavlović S., **Vasiljević D.**, Stefanović V., Stamenković Z., Ayed S.: **Optical model and numerical simulation of the new offset type parabolic concentrator with two types of solar receivers,** *FACTA UNIVERSITATIS SERIES: MECHANICAL ENGINEERING*, Vol. 13 (2015) pp. 169 – 180
Kategorija M24 2 boda
SNIP 0.979 za 2016. godinu
ISSN 0354 – 2025
Ukupn broj citata: ISI Web of Science 2, Scopus 4, Google Scholar 6
Hetero citati: ISI Web of Science -, Scopus 1, Google Scholar 2

7.5. Predavanje po pozivu sa međunarodnog skupa štampano u celini – kategorija M31

7.5.1. Radovi objavljeni nakon prethodnog izbora u zvanje:

1. Mijić Z., **Vasiljević D.**, Kovačević A., Panić B., Minić M., Tasić M., Jelenković B., Belić I., Vuković A.: **Investigation of transport pathways and potential source regions of atmospheric aerosols in Belgrade: receptor modeding and LIDAR system,** *Invited lecture on Optoelectronic Technies for Environmental Monitoring - OTEM 2011*, 28 - 30 Septembar 2011., Magurele, Rumunija, pp 109 - 116.
Kategorija M31 3.5 bodova

7.6. Saopštenje sa međunarodnog skupa štampano u celini – kategorija M33

7.6.1. Radovi objavljeni nakon prethodnog izbora u zvanje:

1. Murić B., Pantelić D., **Vasiljević D.**, Panić B.: **Influence of layer thickness on the optical properties of microlenses**, *Physical Chemestry 2010*, 21 - 24 Septembar 2010., Beograd, Srbija, pp. 438 - 440.
Kategorija M33 1 bod
2. Murić B., Pantelić D., **Vasiljević D.**, Jelenković B.: **Sensitised gelatin as an eye protection filter against direct laser radiation**, *Physical Chemestry 2012*, 21 - 24 Septembar 2010., Beograd, Srbija, pp. 498 - 500.
Kategorija M33 1 bod
3. Murić B., Grujić D., Milovanović D., Pantelić D., **Vasiljević D.**, Jelenković B.: **Fast fabrication of large area concave microlens arrays,** *Physical Chemestry 2014*, 22 - 26 Septembar 2014., Beograd, Srbija, pp. 711 - 714.
Kategorija M33 1 bod
4. **Vasiljević D.**, Ilić S.: **Optimization of the Petzval objective with the various evolution strategies and the damped least squares,** *16th International School on Quantum Electronics: Laser Physics and Applications,* Proc. of SPIE Vol. 7747 (2011) 77471D-1 – 77471D-7
Kategorija M33 1 bod
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SNIP 0.373 za 2011. godinu
5. Pavlović S., **Vasiljević D.**, Stefanović V.: **Optical Design of a Solar Parabolic Thermal Concentrator Based on Trapezoidal Reflective Petals,** *International Conference on advanced technology & science 2014*, 12.08 - 15.08 2014. Antalya, Turska, pp. 1138 - 1142.
Kategorija M33 1 bod
6. B. Murić, D. Pantelić, **D. Vasiljević**, S. Savić-Šević, B. Jelenković**: Tunable (strain responsive) microlenses**, *Physical Chemestry 2016*, 26 - 30 Septembar 2016., Beograd, Srbija, pp. 593 - 596.
Kategorija M33 1 bod
7. Goran Dikić, Danica PavlovIić, Ljubiša Tomić, Dejan Pantelić, **Darko Vasiljević**, Dejan Stojanović: **The Thermographic Analysis of Photonic Characteristics of Rosalia alpina Surfaces**, Proceedings of 3rd International Conference on Electrical, Electronic and Computing Engineering IcETRAN 2016, June 13 – 16, 2016 Zlatibor, Serbia, pp MOI1.2.1-5.
Kategorija M33 1 bod
8. I. Kostić, D. Pavlović, V. Lazović, D. Vasiljević, D. Stojanović, D. Knežević, Lj, Tomić, G. Dikić, D. Pantelić: **Thermal and camouflage properties of *Rosalia alpina* longhorn beetle with structural coloration**, Proceedings of 7th International scientific conference on defensive technologies OTEH 2016, 06 – 07 October 2016, Belgrade Serbia, pp 525 – 529.
Kategorija M33 1 bod

7.6.2. Radovi objavljeni pre prethodnog izbora u zvanje:

1. **Vasiljević D.**, Golobič J.: **Optical system for reading memories which are based on photoelasticity**, *Proc. of the Optics and Information, 6th topical meeting of the European Optical Society*, rad br. 5.15, Mulhouse, France, 1995.
Kategorija M33 1 bod
2. **Vasiljević D.**, Golobič J.: **Comparison of the classical dumped least squares and genetic algorithm in the optimization of the doublet** in *Proc. of the 1st Online Workshop on Soft Computing,* pp.200-204, Nagoya Japan, 1996.
Kategorija M33 1 bod
Ukupan broj citata: 25 Google Scholar
Hetero citati: ISI Web of Science -, Scopus -, Google Scholar 22

3. Golobič J., **Vasiljević D.**: **Memory elements based on an inducted strain in polycarbonate**, in *Third International Conference on Intelligent Materials and Third European Conference on Smart Structures and Materials*, Gobin P., Tatibouet J. ed., Proc. SPIE vol. 2779, pp.414-418, 1996.
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3. **Vasiljević D.**, Golobič J.: **Analysis of various evolutionary algorithms and the classical dumped least squares in the optimization of the doublet** in *Second Online World Conference on Soft Computing in Engineering Design and Manufacturing,* P.K. Chawdhry, R. Roy, R. K. Pand (eds.), Soft Computing in Engineering Design and Manufacturing, Springer Verlag, 1998. pp.173 – 179
Kategorija M33 1 bod
Ukupan broj citata: 4 Google Scholar
Hetero citati: ISI Web of Science -, Scopus -, Google Scholar -
4. **Vasiljević D.**: **Optimization of the Cooke triplet with the various evolution strategies and the damped least squares** in *Optical Design and Analysis Software,* Proc. SPIE vol.3780, pp. 207-215, 1999.
Kategorija M33 1 bod
IPP 0.169 za 1999. godinu
SNIP 0.199 za 1999. godinu
Ukupan broj citata: ISI Web of Science -, Socpus 25, Google Scholar 34
Hetero citati: ISI Web of Science -, Scopus 23, Google Scholar 30
6. **Vasiljević D.**, Pantelić D., Murić B.: **Imaging properties of laser-produced Gaussian profile microlenses** in *14th International School on Quantum Electronics: Laser Physics and Applications,* Proceeding of SPIE vol. 6604, paper no. 66040Q (5 pages) 2007.
Kategorija M33 1 bod
IPP 0.257 za 2007. godinu
SNIP 0.323 za 2007. godinu
ISSN 9780819467423

7.7. Saopštenje sa međunarodnog skupa štampano u izvodu – kategorija M34

7.7.1. Radovi objavljeni nakon prethodnog izbora u zvanje:

1. Puškar T., **Vasiljević D.**, Blažić L., Marković D., Savić-Šević S., Murić B., Pantelić D.: **Stress and straub of dental abutment caused by the polymerization shrinkage of dental composite**, *Photonica 2011*, 29.08. - 02.09. 2011., Beograd, Srbija, p. 118
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2. **Vasiljević D.**, Murić B., Pantelić D., Panić B.: **Analysis of imaging properties of microlenses based on the TESG layer elasticity**, *Photonica 2011*, 29.08. - 02.09. 2011., Beograd, Srbija, p. 65
Kategorija M34 0.5 bodova
3. **Vasiljević D.**, Kantardžić I., Blažić L., Tasić M., Puškar T.: **3D solid model generation of a human maxillary premolar based on CT data**, *Photonica 2011*, 29.08. - 02.09. 2011., Beograd, Srbija, p. 119
Kategorija M34 0.5 bodova
4. Lučić N., Bokić B., Grujić D., Pantelić D., **Vasiljević D.**, Timotijević D., Piper A., Jović D.: **Defect controlled Airy beam acceleration in optically induced waveguide arrays,** *Photonica 2013*, 26.08. - 30.08.2013., Beograd, Srbija, p. 70
Kategorija M34 0.5 bodova
5. Murić B., Pantelić D., **Vasiljević D.**, Jelenković B.: **Microlens formation as a protective mechanism against direct las,er radiation,** *Photonica 2013*, 26.08. - 30.08.2013., Beograd, Srbija, p. 141
Kategorija M34 0.5 bodova

6. Kantardžić I., **Vasiljević D.**, Blažić L., Tasić M.: **Three-dimensional simulations of different cavity designs in computed tomography scan.based tooth model,** *Regional biophysics Conference 2012,* 03.09 – 07.09 2012, Kladovo, Srbija, P51.S4
Kategorija M34 0.5 bodova
7. Kantardžić I., **Vasiljević D.**, Blažić L.: **Influence of cavity design on cuspal deflection in maxillary premolar,** *101st FDI Annular World Dental Congress,* 28.08 – 31.08 2013 Instambul, Turska, p232
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8. D. Ž. Grujuć, **D. Vasiljević**, D.V. Pantelić: **Dental composite polymerization process: digital holographic interferometry method**, *Photonica 2015*, 24.08 – 28.08.2015. Beograd, Srbija, p. 182
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9. B. Murić, D.V. Pantelić, **D. Vasiljević**: **Laser-iduced microlensing as a power limiting, protective mechanism**, *Photonica 2015*, 24.08 – 28.08.2015., Beograd, Srbija, p. 187
Kategorija M34 0.5 bodova

7.7.2. Radovi objavljeni pre prethodnog izbora u zvanje:

1. Puškar T., Jevremović D., Blažić L., Pantelić D., **Vasiljević D.**, Savić – Šević S., Murić B.: **Stress and strain of abutment teeth due to composite core build up shinkage**, in *14th Congress of Balkan Stomatological Society* 6 – 9 May 2009, Varna Bulgaria OP037, p31
Kategorija M34 0.5 bodova
2. Jevremović D., Puškar T., **Vasiljević D.**: **The use of stereolitography files for three dimensional finite tooth model creation** in *14th Congress of Balkan Stomatological Society* 6 – 9 May 2009, Varna Bulgaria OP053, p37
Kategorija M34 0.5 bodova
3. Puškar T., Jevremović D., **Vasiljević D.**, Blažić L., Marković D., Puškar S.: **Mathematical model of dental structures for finite element analysis** in *First International Symposium of Clinical and Applied Anatomy*, 17 – 19 September 2009 Novi Sad, p115
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4. Jevremović D., Puškar T., **Vasiljević D.**: **Three dimensional finite element model generation using the stereolitography files** in *First International Symposium of Clinical and Applied Anatomy*, 17 – 19 September 2009 Novi Sad, p75
Kategorija M34 0.5 bodova

7.8. Radovi objavljeni u vrhunskom časopisu nacionalnog značaja – kategorija M51

7.8.1. Radovi objavljeni nakon prethodnog izbora u zvanje:

1. Jakšić Z., **Vasiljević D.**, Šćepanović J., Vrhovac S.: **Compaction dynamics of vibrated granular materials**, Scientific Technical Review Vol. 62 (2012), br. 3-4, 39 – 44.
Kategorija M51 2 boda
2. Dujak D., Karač A., Jakšić Z., **Vasiljević D.**, Vrhovac S.: **Detecting a structure in two dimensions combining the Voronoï tessellation and a shape factor**, Scientific Technical Review Vol. 64 (2014), br. 1, 13 – 20.
Kategorija M51 2 boda
3. Redjimi A., Knežević D., Savić K., Jovanović N., Simović M., **Vasiljević D.**,: **Noise equivalent temperature difference model for thermal imagers, calculation and analysis,** Scientific Technical Review Vol. 64 (2014), br. 2, 42 – 49.
Kategorija M51 2 boda

7.9. Radovi objavljeni u istaknutom nacionalnom časopisu – kategorija M52

7.9.1. Radovi objavljeni nakon prethodnog izbora u zvanje:

1. Puškar T., Jevremović D., Blažić L., **Vasiljević D.**, Pantelić D., Murić B., Trifković B.: **Holographic interferometry as a method for measuring strain caused by polymerization shrinkage of dental composite**, Contemporary materials, vol.1 (2010) br. 1, 105 – 111.
Kategorija M52 1.5 bod
Ukupn broj citata: Google Scholar 4
Hetero citati: ISI Web of Science -, Scopus -, Google Scholar 4
2. Kantardžić I., Blažić L., **Vasiljević D.**, Petrović Đ.: **How to restore endodontically treated posterior teeth: A conservative approach**, Serbian Dental Journal, vol. 59 (212), no. 2, p. 90 – 95.
Kategorija M52 1.5 bod
Ukupn broj citata: Google Scholar 2
Hetero citati: ISI Web of Science -, Scopus -, Google Scholar 1

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1. **Vasiljević D.**, Belić I., Panić B., Kovačević A., Pantelić D., Jelenković B., Tasić M.: **Projektovanje proširivača snopa za LIDAR – LID 2**, Tehnika Vol. LXII (Elektrotehnika Vol. 56), 2007., br. 3, 1 – 8.
Kategorija M52 1.5 bod
2. Kovačević A., **Vasiljević D.**, Belić I., Panić B., Pantelić D., Jelenković B., Tasić M.: **Podsistem za prikupljanje i pripremnu obradu podataka u lidar sistemu**, Tehnika LXII (Elektrotehnika 56), 2007., br.4, 9 – 13.
Kategorija M52 1.5 bod
3. Belić I., **Vasiljević D.**, Panić B., Kovačević A., Pantelić D., Jelenković B., Tasić M.: **Prijemni optički blok za LIDAR – LID 2**, Tehnika LXIII (Elektrotehnika 57), 2008., br.1, 7 – 13.
Kategorija M52 1.5 bod
4. **Vasiljević D.**, Belić I., Panić B., Kovačević A., Pantelić D., Jelenković B., Tasić M.: **Teleskop za LIDAR – LID 2**, Tehnika LXIII (Elektrotehnika 57), 2008., br.4, 1 – 6.
Kategorija M52 1.5 bod
5. Panić B., Minić M., Kovačević A., **Vasiljević D.**, Belić I., Pantelić D., Jelenković B., Tasić M.: **Fotodetekcija optičkog signala u LIDAR sistemu LID 2,** Tehnika LXIV (Elektrotehnika 58), 2009., br.1, 1 – 6.
Kategorija M52 1.5 bod
6. **Vasiljevć D.**, Riđošić D.: **Optimizacija u procesu projektovanja optičkih sistema** *Naučno-tehnički pregled,* Vol.XLII, 1992., br.2 (24-31).
Kategorija M52 1.5 bod
7. Riđošić D., **Vasiljevć D.**, Krnjaja R.: **Projektovanje asferičnih optičkih sistema** *Naučno-tehnički pregled,* Vol.XLII, 1992,, br.4 (20-24).
Kategorija M52 1.5 bod
8. Riđošić D., **Vasiljevć D.**: **Analiza uticaja materijala podloge i deponovanog sloja na refleksivnost i transmitivnost optičkih instrumenata za vidljivo područje spektra** *Naučno-tehnički pregled,* Vol.XLIII, 1993., br.5 (10-14).
Kategorija M52 1.5 bod
9. **Vasiljevć D.**, Riđošić D.: **Uticaj promene konstrukcionih parametara Cassegrainovog objektiva na njegove karakteristike** *Naučno-tehnički pregled,* Vol.XLIII, 1993., br.6 (37-42).
Kategorija M52 1.5 bod
10. **Vasiljević D.**: **Teorijske osnove i programsko rešenje genetskog algoritma primenjenog u optimizaciji optičkih sistema** *Naučno-tehnički pregled,* Vol.XLVIII, 1998., br.3 (30-40).
Kategorija M52 1.5 bod

11. **Vasiljević D.**: **Teorijske osnove i programsko rešenje evolucionih strategija primenjenih u optimizaciji optičkih sistema** *Naučno-tehnički pregled,* Vol.XLVIX, 1999., br.1 (29-43).
Kategorija M52 1.5 bod
12. **Vasiljević D.**: **Uporedna analiza optimizovanih dublea pomoću metode prigušenih najmanjih kvadrata, genetskog algoritma i evolucionih strategija** *Naučno-tehnički pregled,* Vol. XLVIX, 1999., br.5 (30-38).
Kategorija M52 1.5 bod
13. **Vasiljević D.**: **Uporedna analiza optimizovanih triplea pomoću metode prigušenih najmanjih kvadrata, genetskog algoritma i evolucionih strategija** *Naučno-tehnički pregled,* Vol. L, 2000., br.2 (28 – 37).
Kategorija M52 1.5 bod
14. **Vasiljević D.**: **Program za projektovanje i optimizaciju optičkih sistema** *Naučno-tehnički pregled,* Vol. L, 2000., br.3 (12 – 18).
Kategorija M52 1.5 bod
14. **Vasiljević D.**: **Program for Optical System Design and Optimization** *Scientific Technical Review,* Vol. LII, 2002., No. 3 (40 – 46).

7.10. Saopštenje sa skupa nacionalnog značaja štampano u celini – kategorija M63

7.10.1. Radovi objavljeni nakon prethodnog izbora u zvanje:

1. Pantelić D., Murić B., **Vasiljević D.**: **Zaštita od laserskog zračenja**, XXVI simpozijum DZZSCG, 12.10. –14.10. 2011. Tara, Srbija, str 24 – 27.
Kategorija M63 1 bod

7.10.2. Radovi objavljeni pre prethodnog izbora u zvanje:

1. **Vasiljević D.**, Belić I., Pantelić D., Panić B.: **Projektovanje prijemnog optičkog sistema za LIDAR**, L konferencija za ETRAN, Beograd 2006., Zbornik radova sveska IV str 100 – 103.
Kategorija M63 1 bod
2. Murić B., Pantelić D., **Vasiljević D.**, Panić B.: **Osobine mikrosočiva formiranih na slojevima želatina senzibilizovanog tot'hemom i eozinom,** LI konferencija za ETRAN, Herceg Novi jun 2007., rad MO4.5.
Kategorija M63 1 bod
3. Belić I., **Vasiljević D.**, Kovačević A., Panić B., Mijić Z., Novaković V., Tasić M., Jelenković B., Pantelić D.: **Primena lidar–a u detekciji aero–zagađenja**, Kongres Metrologa, Zlatibor 26 – 28 Septembar 2007., Zbornik radova str. 181 – 189.
Kategorija M63 1 bod
4. Murić B., Pantelić D., **Vasiljević D.**, Panić B.: **Termovizijska analiza mehanizama formiranja mikrosočiva**, LII konferencija za ETRAN, Palić 8 – 12 jun 2008. rad MO5.3.
Kategorija M63 1 bod
5. Kovačević A., Panić B., Minić M., **Vasiljević D.**, Mijić Z., Tasić M., Jelenković B. **Detekcija povratnog rasejanog zračenja lidar sistema na 532 nm**, LII konferencija za ETRAN, Palić 8 – 12 jun 2008. rad MO5.4.
Kategorija M63 1 bod
6. **Vasiljević D.**, Golobič J.: **Projektovanje Fresnel-ovog sočiva od polikarbonata** XXXVIII Konferencija za ETRAN, Niš, 7 - 9 Jun 1994., Zbornik radova sveska II str.181-182.

7.11. Saopštenje sa skupa nacionalnog značaja štampano u izvodu – kategorija M64

7.11.1. Radovi objavljeni nakon prethodnog izbora u zvanje:

1. Kantardžić I., **Vasiljević D.**, Blažić L., Puškar T., Petrović K.: **Primena metode konačnih elemenata u stomatološkim istraživanjima**, Fotonika 2010 Teorija i eksperiment u Srbiji, Beograd, 21 – 23 april 2010.
Kategorija M64 0.2 boda

2. Murić B., Pantelić D., **Vasiljević D.**, Rosić M., Pantović S.: **Mehaničke osobine sloja želatina senzibilizovanog tot'hemom i eozinom (TESG)**, Fotonika 2010 Teorija i eksperiment u Srbiji, Beograd, 21 – 23 april 2010.
Kategorija M64 0.2 boda
3. Puškar T., **Vasiljević D.**, Blažić L., Pantelić D., Savić-Šević S., Marković D., Kantardžić I.: **Primena holografske interferometrije za ispitivanje deformacija tvrdih zubnih tkiva prilikom terapije zuba svetlosno polimerizujućim kompozitnim materijalima**, Fotonika 2010 Teorija i eksperiment u Srbiji, Beograd, 21 – 23 april 2010.
Kategorija M64 0.2 boda
4. Kantardžić I., **Vasiljević D.**, Blažić L., Puškar T.: **Primena savremenih tehnologija u stomatološkim istraživanjima**, I kongres stomatologa Srbije, Beograd 20 – 23 oktobar 2010.
Kategorija M64 0.2 boda
5. Kantardžić I., **Vasiljević D.**, Blažić L., Puškar T. Petrović K.: **Dizajniranje 3D modela zuba primenom kompjuterske tomografije**, Simpozijum stomatologa i saradnika, Novi Sad, 27 – 29 maj 2010.
Kategorija M64 0.2 boda
6. **Vasiljević D.**, Kantardžić I., Blažić L., Tasić M., Puškar T. Petrović K.: **Realni matematički model gornjeg drugog premolara za analizu napona i deformacija**, Četvrta radionica fotonike, Kopaonik, 02 – 06 mart 2011.
Kategorija M64 0.2 boda
7. Vukadinov T., **Vasiljević D.**, Kantardžić I., Lainović T., Grgić O., Blažić L.: **Uticaj primene intrakanalnih kočića u rekonstrukciji endodontski lečenih premolara na promene napona u zubnim strukturama**, Simpozijum stomatologa i saradnika, Novi Sad, 30 – 31 maj 2014.
Kategorija M64 0.2 boda

7.11.2. Radovi objavljeni pre prethodnog izbora u zvanje:

1. Puškar T., Blažić L., Pantelić D., **Vasiljević D.**, Savić- Šević S., Murić B., Marković D. **Holografska interferometrija u stomatološkoj protetici,** Stomatološka protetika, Kratki sadržaji predavanja i postera XV Simpozijum protetičara Srbije, Beograd, jun 2008.
Kategorija M64 0.2 boda
2. **Vasiljević D.**, Puškar T., Pantelić D., Savić – Šević S., Murić B., Panić B.: **Uprošćeni matematički model zubnog patrljka za analizu deformacija i napona**, Fotonika 2009 Teorija i Eksperimenti u Srbiji, 22 – 24 april 2009.
Kategorija M64 0.2 boda
3. Murić B., Pantelić D., **Vasiljević D.**, Panić B.: **Lasersko formiranje mikrosočiva**, Fotonika 2009 Teorija i Eksperimenti u Srbiji, 22 – 24 april 2009.
Kategorija M64 0.2 boda

7.12. Ostali radovi objavljeni pre izbora u zvanje

7.12.1. Monografija nacionalnog značaja – kategorija M42

1. Nedić B., Vesić N. **Vasiljević D.**: Boja, kolorimetrija i plastične mase, Mašinski Fakultet, Kragujevac, 2008.
Monografija nacionalnog značaja - kategorija M42 5 bodova
2. Belić I., Kovačević A., **Vasiljević D.**, Panić B., Jelenković B., Tasić M.: LIDAR u detekciji aerozagadjenja LID – 2, Institut za fiziku, Beograd, 2008.
Monografija nacionalnog značaja - kategorija M42 5 bodova

7.12.2. Poglavlje u monografiji nacionalnog značaja – kategorija M45

1. Nedić B., **Vasiljević D.**, Vesić N.: Complexity of designing optical systems in Kuzmanović S. Ed.: Machine Design, University of Novi Sad, Faculty of Technical Sciences, 2007.
Poglavlje u monografiji nacionalnog značaja M45 1.5 bodova

7.12.3. Radovi objavljeni u nacionalnom časopisu – kategorija M53

1. **Vasiljevć D.**, Riđošić D.: **Automatizacija procesa projektovanja optičkih sistema pomoću računara** *Vojnotehnički glasnik,* br.5/1991.
Kategorija M53 1 bod
2. Riđošić D., **Vasiljevć D.**, Krnjaja R.: **Neke metode za ocenu kvaliteta optičkih sistema** *Vojnotehnički glasnik,* br.4/1992.
Kategorija M53 1 bod
3. **Vasiljević D.**, Golobič J.: **Optički nišani za automatske puške** *Novi glasnik* br. 1/2004 str. 61 – 69.
Kategorija M53 1 bod

7.12.4. Naučne knjige i udžbenici:

1. **Vasiljević D.**: **Classical and Evolutionary algorithms in the optimization of optical systems**, Kluwer Academic Publishers, Boston/Dordrecht/London, 2002.
2. **Vasiljević D.**: **Optički uređaji i optoelektronika**, Mašinski Fakultet, Beograd, 2005.
3. Tančić Lj., Regodić D., Ristić Z., Kari A., **Vasiljević D.,** Maričić Z.: **Poznavanje i održavanje naoružanja**, Vojnoizdavački zavod, Beograd 2009.

7.12.5. Radovi sa ograničenom cirkulacijom

1. Janković R., Vignjević V., **Vasiljević D.**: **Principles of expert systems development, artificial neural networks and evolutionary computation**, skripta za studente iz Libije, VTI – S-003/024-I.
2. **Sistem protivoklopne vođene rakete za male daljine Bumbar: Tehnička studija**, VTI - 03 - 01 - 0311, Beograd, 1994.
3. **Program realizacije za raketu GROM - B,** VTI - 03 - 01 - 0379, Beograd, 1995.
4. **Podsistem za upravljanje vatrom, Nišan dnevni optički, Program realizacije za razvoj,** VTI 019 – 11.0226, Beograd, 2001.
5. **Vasiljević D.**: **Softver za projektovanje i analizu optičkih sistema** *Naučno-tehnička informacija* br. 7 Beograd, 2000.

7.13. Tehnička rešenja objavljena pre izbora u zvanje

7.13.1. Bitno poboljšani postojeći proizvod ili tehnologija

1. Belić I., **Vasiljević D.**, Kovačević A., Panić B., Jedinstveni prijemni optički blok za dve talasne dužine laserskog zračenja 1064 nm i 532 nm, 2008, korisnik Institut za fiziku.

7.13.2. Prototip, nova metoda, softver:

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WA Oke, MA Abido, TB Asafa - Mechanics & Industry, 2015 - mechanics-industry.org

NATIONAL INSTITUTE OF RESEARCH
AND DEVELOPMENT FOR
OPTOELECTRONICS

Certificate No.: AJAEU/09/11337

409 Atomistilor Street, PO BOX MG-5, RO 077125, Magurele – Ilfov, Romania, Tel./Fax: +40.21.457.45.22, E-mail: inoe@inoe.inoe.ro,
http://inoe.inoe.ro

June, 9 2011

LETTER OF INVITATION

Dear Darko Vasiljevic,

It gives us a great pleasure to invite you to participate and give your valuable contribution as a speaker to the 5th Workshop on Optoelectronic Techniques for Environmental Monitoring-OTEM 2011 which will take place during 28th to 30th of September at the "Romanian Atmospheric Observatory", Magurele, Romania. It will be an honor to have you as an invited lecturer.

The aim of this meeting is to bring together experts from countries around the world to discuss laser remote sensing techniques for environmental monitoring issues and to provide a better understanding of this scientific field.

The Workshop will cover four topics:

- Sensors and instrumentations(in situ, laboratory, remote sensing)
- Satellite imagery
- Modelling and analysis tools
- Hazard and risk assessment

Also you are invited to participate to the following special events:

- September 28: ***Official opening*** of the Romanian Atmospheric Observatory-RADO
- September 29: ***Final conference*** of the DELICE project (FP7-REGPOT-2008-1, 229907) - Environmental Remote Sensing Conference
- September 30: ***Exhibition*** on optoelectronic equipments for environmental monitoring
- September 30: ***Info hour*** on Innovative clustering policy

We will be able to cover your travel and accommodation expenses. Please let us know your wishes regarding the exact period for traveling to Romania, so that we can make arrangements for airline tickets and accommodation.

We look forward to welcome you!

Yours sincerely,
Dr. Doina Nicolae

Dear Prof. Vasiljevic:
Thank you for your review of the revised manuscript OE 161823R "Quality optimisation and control technology for a full field-of-view imaging surface using a stationary phase method and an ambiguity function method" by Xuemin Cheng, Qun Hao, Xiangyu Yuan, and Kuowen Chang.
Sincerely,
Simon Thibault
Associate Editor
Rajpal Sirohi
Senior Editor

OE Editorial Office
Journals Department
SPIE
P.O. Box 10
Bellingham, WA 98227-0010 USA
Tel: 360-676-3290
Fax: 360-647-1445
oe@spie.org

Dear Prof. Vasiljevic,
Thank you for your review of this manuscript submitted to Optical Engineering (OE):
Manuscript: OE 161823
Title: "Quality optimisation and control technology for a full field-of-view imaging surface using a stationary phase method and an ambiguity function method"
Author(s): Xuemin Cheng, Qun Hao, Xiangyu Yuan, and Kuowen Chang
Your recommendations will be taken into careful consideration before a decision on this manuscript is reached, and your substantive comments will be forwarded, anonymously, to the corresponding author. We greatly appreciate your assistance.
Sincerely,
Simon Thibault
Associate Editor
Dr. Michael Eismann
Editor, Optical Engineering
P.O. Box 10
Bellingham, WA 98227-0010
360-676-3290
oe@spie.org

OE Editorial Office
Journals Department
SPIE
P.O. Box 10
Bellingham, WA 98227-0010 USA
Tel: 360-676-3290
Fax: 360-647-1445
oe@spie.org

Dear Prof. Vasiljevic,
Thank you for your review of this manuscript submitted to Optical Engineering (OE):
Manuscript: OE 161257
Title: "Line-Time Optimization Technology for Ultra-Large Size and High Resolution Liquid Crystal Displays"
Author(s): Seung-Hyuck Lee, Dong-Hwan Jeon, Jong-Man Kim, and Seung-Woo Lee
Your recommendations will be taken into careful consideration before a decision on this manuscript is reached, and your substantive comments will be forwarded, anonymously, to the corresponding author. We greatly appreciate your assistance.
Sincerely,
Andy Tescher
Associate Editor
Dr. Michael Eismann
Editor, Optical Engineering
P.O. Box 10
Bellingham, WA 98227-0010
360-676-3290
oe@spie.org

OE Editorial Office
Journals Department
SPIE
P.O. Box 10
Bellingham, WA 98227-0010 USA
Tel: 360-676-3290
Fax: 360-647-1445
oe@spie.org

Dear Dr Vasiljevic,
Re: "A Compact Planar Lens Applied for a Built-in LED Flash of Smartphones" by Chen, Chi-Feng; Kuo, Shin-Hong
Article reference: JMM-101727
Thank you for your report on this Paper, which is being considered by Journal of Micromechanics and Microengineering.
We appreciate the time and effort that you have spent reviewing this manuscript and we are very grateful for your assistance.
We hope that we will be able to call upon you again to review future manuscripts.
Yours sincerely
Kit Durant
Publishing Team
Ian Forbes - Publisher
Graham Stinton and Beth Cotterell - Publishing Editors
Kit Durant - Publishing Administrator
Max Rowe-Brown - Production Editor
jmm@iop.org
IOP Publishing
Temple Circus, Temple Way, Bristol
BS1 6HG, UK
www.iopscience.org/jmm
Letter reference: ESPSNS05

Manuscript ID: 242909 Type: research article
Title: A multi-objective approach for the automatic design of optical systems
Author: Braulio Albuquerque
Dear Dr. Vasiljevic,
Your comments and recommendation to Associate Editor Ho-Soon Yang for this manuscript have been received.
Thank you for your efforts in helping to maintain OSA's high standards of publication.
Sincerely,
Optics Express Manuscript Office
opex@osa.org

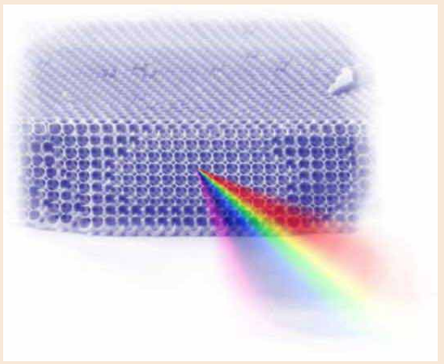
Dear Prof. Vasiljevic:
Thank you for reviewing the manuscript, 150030P, "Endoscopy applied to the study of blood vessel dynamics." The following decision, based partly on your input, has been reached: Reject.
*Note that a letter "R" at the end of the paper number indicates that the manuscript went through a revision prior to the final decision; more than one "R" indicates it went through several rounds of revision.
The comments of all the reviewers are included below.
Your assistance and participation in the review process for Journal of Biomedical Optics is greatly appreciated.
Sincerely,
David Sampson
Editorial Board Member
Journal of Biomedical Optics
Lihong Wang
Editor-in-Chief
Journal of Biomedical Optics

06-Jun-2011
Dear Dr. Vasilijevic:
Thank you for reviewing manuscript # JLT-13196-2011 entitled "A novel strategy for adaptive selection of damping factors in thin film design" for the Journal of Lightwave Technology.
On behalf of the Editors of the Journal of Lightwave Technology, we appreciate the voluntary contribution that each reviewer gives to the Journal. We thank you for your participation in the online review process and hope that we may call upon you again to review future manuscripts.
Sincerely,
Prof. Ampalavanapillai Nirmalathas
Associate Editor, Journal of Lightwave Technology
nirmalat@unimelb.edu.au

Ms. Ref. No.: OLEN-D-10-00044
Title: Optical Design and Multi-Objective Optimization with Fuzzy Method for Miniature Zoom Optics
Optics and Lasers in Engineering
Dear Prof. Darko Vasiljevic,
Thank you for taking the time to review the above-referenced manuscript. You can access your

comments and the decision letter when it becomes available.
Thank you again for sharing your time and expertise.
Yours sincerely,
Huimin Xie
Editor (Manuscripts from China)
Optics and Lasers in Engineering

OQEL-D-17-00798
"Selection of optical polymers in lens design"
Optical and Quantum Electronics
Dear Dr. Vasiljevic,
Thank you for agreeing to review the above manuscript.
With kind regards,
Guest Editors of S.I. : Photonica 2017
Guest Editor
Optical and Quantum Electronics



Committees

Members of the Program and Organization Committees.

Program Committee:

Branislav Jelenković (chair)
Ljupčo Hadžievski
Zoran Jakšić
Dejan Pantelić
Darko Vasiljević
Aleksander Kovačević

Organization Committee:

Darko Vasiljević (chair)
Aleksander Kovačević
Dragan Lukić
Aleksandar Krmpot
Branislav Jelenković

ЧУВАТИ ТРАЈНО

ФУНКЦИЈА 03/24

27.11.2014. год. ВС О. Благојевић

(датум) (обрађивач)

РЕПУБЛИКА СРБИЈА
МИНИСТАРСТВО ОДБРАНЕ
СЕКТОР ЗА ЉУДСКЕ РЕСУРСЕ
ВОЈНА АКАДЕМИЈА
ДЕКАНАТ
_____ бр. 102-516
_____. 2014. године
Београд

28 NOV 2014

На основу члана 85. став 1. тачка 6. Статута Војне академије ("СВЛ" бр. 17/12), Веће за техничко-технолошке науке је на својој 13. седници одржаној 25.11.2014. године донело

О Д Л У К У

1. Именује се комисија за оцену подобности кандидата **поручника Anis Redjimi** и теме докторске дисертације под називом **"Просторно-временска калибрација система за анализу вишеканалних видео и аудио записа".**

2. У састав комисије за оцену теме и кандидата одређују се:
   - потпуковник доц. др Александар Кари, дипл. инж., председник
   - доц. др Зоран Николић, дипл. инж., члан
   - ванр. проф. др Дарко Васиљевић, дипл. инж., ментор

3. Комисија је дужна да, у складу са чланом 4. став 4. Правилника о пријави, изради и одбрани докторске дисертације и промицији доктора наука ("СВЛ" бр. 20/12), проучи пријаву теме за докторску дисертацију и најкасније за 30 дана достави изештај о подобности теме и кандидата.

МА/ОБ

ПРЕДСЕДНИК ВЕЋА
пуковник, ред. проф.
др Марко Андрејић, дипл. инж.

Умножено у 5 (пет) примерака и
достављено:
- пор Anis Redjimi (преко Катедре ВМИ)
- др Дарко Васиљевић (преко Катедре ВМИ)
- др Зоран Николић (преко Катедре ВМИ)
- пп Александар Кари (Катедра ВМИ), електронском разменом
- Оливера Благојвић (Деканат), електронском разменом
- а/а.

РЕПУБЛИКА СРБИЈА
МИНИСТАРСТВО ОДБРАНЕ
УНИВЕРЗИТЕТ ОДБРАНЕ
Ректорат
бр. 153 - 33
мај 2015. године

На основу члана 37. став 5. Статута Универзитета одбране у Београду („Службени војни лист" број 24/11) и члана 7. Правилника о пријави, изради и одбрани докторске дисертације и промоције доктора наука („Службени војни лист", бр. 20/12 и 25/13) и Мишљења Стручног већа техничко-технолошких наука Универзитета одбране (акт УО, инт.бр 181-22 од 30. марта 2015. године), Сенат Универзитета одбране у Београду, на XXXIX седници одржаној 7. маја 2015. године, донео је

ОДЛУКУ

1. ДАЈЕ СЕ САГЛАСНОСТ поручнику мр **Redjimi Anisu** за израду докторске дисертације **„Просторно-временска калибрација система за анализу вишеканалних видео и аудио записа"**, у области Машинско инжењерство.

2. ДАЈЕ СЕ САГЛАСНОСТ да ментор за израду докторске дисертације из тачке 1. ове одлуке буде виши научни сарадник **др Дарко Васиљевић**, ванредни професор са изборним звањем из уже научне области Оптички уређаји и оптоелектроника.

3. Кандидат има обавезу да најкасније до 07. новембра 2017. године надлежном стручном органу Војне академије Универзитета одбране преда неукоричени примерак готовог докторског рада, како би докторску дисертацију одбранио до 7. маја 2018. године.

4. Уз неукоричени примерак готовог докторског рада, кандидат подноси и доказ да има најмање један рад из оквира теме докторске дисертације објављен или прихваћен за објављивање у часопису SCI листе.

ОДЛУКА Си бр. 9/39

у Београду,
7. маја 2015. године

РЕКТОР
генерал-мајор
проф. др Младен Вуруна

Достављено:
- члановима Сената УО,
- Војној академији УО,
- ванр. проф. др Дарко Васиљевић, ВА,
- мр. мр Redjimi Anisu, ВА,
- Секретаријату УО,
- архиви.

МЕДИЦИНСКИ ФАКУЛТЕТ НОВИ САД
Одељење за правне и опште послове
Број: 05-14/16
Датум: 05. 09. 2011.

На основу члана 55. Закона о високом образовању (Сл. Гласник РС, бр.76/2005.,100/2007-аутентично тумачење и 97/2008.) и члана 140. Статута Медицинског факултета у Новом Саду, на седници Наставно-научног већа које је одржано 05. 09. 2011.године, донета је следећа

Ад. 6.

О Д Л У К А

Даје се сагласност **др Ивани Кантарџић** за израду докторске дисертације под насловом **УТИЦАЈ РЕСТАУРАТИВНИХ ПРОЦЕДУРА НА БИОМЕХАНИЧКЕ КАРАКТЕРИСТИКЕ ПРЕМОЛАРА-АНАЛИЗА РЕАЛНОГ ТРОДИМЕНЗИОНАЛНОГ МОДЕЛА ЗУБА ПРИМЕНОМ МЕТОДЕ КОНАЧНИХ ЕЛЕМЕНАТА.**
За ментора се именује: проф. др Лариса Блажић и др Дарко Васиљевић, виши научни сарадник, Институт за физику Београд..

ПРЕДСЕДНИК ВЕЋА
Проф. др Никола Грујић

УНИВЕРЗИТЕТ У НОВОМ САДУ
МЕДИЦИНСКИ ФАКУЛТЕТ НОВИ САД
Одељење за правне, кадровске и опште послове
Број: 05-14/12-2014
Дана: 6. 2. 2014. године
МЗ/СН-8

На основу члана 55. *Закона о високом образовању* (Сл. гласник РС бр. 76/2005, 100/2007 – аутентично тумачење, 97/2008, 44/2010 , 93/2012 и 89/2013), члана 20. *Правила докторских студија* Универзитета у Новом Саду (Сенат Универзитета, од 12. и 19. 03. 2009. године, 28. 05. 2009. године, 17. 11. 2011. године и 25. 02. 2013. године-пречишћен текст), члана 137. *Статута Медицинског факултета у Новом Саду* од 30. 06. 2011. године, чл. 2. и чл. 10. *Пословника о раду Наставно-научног већа Медицинског факултета у Новом Саду* од 15. 11. 2012. године, на седници Наставно-научног већа одржаној дана 6. 2. 2014. године, једногласно је донета следећа

ОДЛУКА

Даје се сагласност **др Татјани Вукадинов** за израду докторске дисертације под насловом ***Утицај ендодонтске инструментације и рестауративних процедура на биомеханичке карактеристике ендодонтски лечених премолара.***

Проф. др Лариса Блажић, ванредни професор Медицинског факултета Универзитета у Новом Саду, за ужу научну област Стоматологија и **др Дарко Васиљевић**, виши научни сарадник Института за физику Универзитета у Београду, именују се за менторе наведеном кандидату.

ПРЕДСЕДНИК ВЕЋА
Проф. др сц. мед. Никола Грујић, декан

Доставити:
-Служби за докторске студије, специјализације и науку
-Именованим менторима
-Кандидату
-Архиви

УНИВЕРЗИТЕТ У БЕОГРАДУ
- МАШИНСКИ ФАКУЛТЕТ –
Број:486/2
Датум: 02.03.2017. године
Београд, Краљице Марије бр.16

На основу обавештења др Момчила Милиновића, ред.проф., ментора да је студент Саша Живковић, дипл. инж. маш., завршио докторску дисертацију **"СИСТЕМ ЗА УПРАВЉАЊЕ ВЕКТОРОМ ПОТИСКА ГАСОДИНАМИЧКИМ ИНТЕРЦЕПТОРИМА"**, предлога Катедре за системе наоружања, а сагласно члану 30. Закона о високом образовању („Службени гласник РС", број 76/2005, 100/2007 – аутентично тумачење, 97/2008, 93/2012 и 89/2013) и члану 36. Правилника о докторским студијама Машинског факултета, Наставно-научно веће Машинског факултета на седници одржаној дана 02.03.2017. године, донело је следећу

О Д Л У К У

- др Слободан Јарамаз, ред. проф.,
- др Момчило Милиновић, ред. проф., ментор
- др Дејан Мицковић, ред. проф.
- др Предраг Елек, ванр. проф.
- др Дарко Васиљевић, виши научни сарадник, Институт за физику, Београд

именују се за чланове Комисије за оцену и одбрану докторске дисертације **«СИСТЕМ ЗА УПРАВЉАЊЕ ВЕКТОРОМ ПОТИСКА ГАСОДИНАМИЧКИМ ИНТЕРЦЕПТОРИМА »** студента **САШЕ ЖИВКОВИЋА, дипл. инж. маш**.

Одлуку доставити: члановима Комисије, студенту и архиви Факултета.

ДЕКАН
МАШИНСКОГ ФАКУЛТЕТА

проф. др Радивоје Митровић

УНИВЕРЗИТЕТ У БЕОГРАДУ
- МАШИНСКИ ФАКУЛТЕТ –
Број: 1383/2
Датум: 23.06.2016. године
Београд, Краљице Марије 16

На основу члана 30. Закона о високом образовању („Службени гласник РС“, број 76/2005, 100/2007 – аутентично тумачење, 97/2008, 93/2012 и 89/2013), члана 63. Статута Машинског факултета (број 1876/1 од 04.10.2013. године) и члана 28. Правилника о докторским студијама Машинског факултета и сагласности Катедре за системе наоружања, а решавајући по захтеву студента **Саше Живковића**, **дипл. инж. маш.**, да му се одобри израда докторске дисертације и именује Комисија за подношење реферата о теми докторске дисертације, Наставно-научно веће Машинског факултета на седници одржаној 23.06.2016. године, донело је следећу

О Д Л У К У

САШИ ЖИВКОВИЋУ, **дипл. инж. маш.**, Машинског факултета Универзитета у Београду, прихвата се тема докторске дисертације **«ПРОЈЕКТОВАЊЕ СИСТЕМА ЗА УПРАВЉАЊЕ ВЕКТОРОМ ПОТИСКА ГАСОДИНАМИЧКИМ ИНТЕРЦЕПТОРИМА»**, именује се ментор **др Момчило Милиновић, ред. проф.** и именује се Комисија за подношење реферата о теми докторске дисертације у саставу:

- др Момчило Милиновић, ред. проф., ментор,
- др Слободан Јарамаз, ред. проф.,
- др Дејан Мицковић, ред. проф.,
- др Предраг Елек, ванр. проф.
- др Дарко Васиљевић, виши научни сарадник, Институт за физику Београд

Рок за подношење реферата Комисије је 14 дана, од дана доношења Одлуке.

Одлуку доставити: ментору, члановима Комисије, кандидату, Катедри за системе наоружања и архиви Факултета.

ДЕКАН
МАШИНСКОГ ФАКУЛТЕТА

Проф. др Радивоје Митровић

УНИВЕРЗИТЕТ У БЕОГРАДУ
- МАШИНСКИ ФАКУЛТЕТ –
Број: 746/2
Датум: 26.04.2012. године
Београд, Краљице Марије бр.16

На основу извештаја проф.др Слободана Јарамаза, ментора, да је докторант мр Бојан Павковић, дипл.инж.маш., завршио докторску дисертацију "Истраживање метода корекције трајекторија пројектила у функцији од повећања њиховог домета и прецизности", предлога Катедре за системе наоружања и члана 128. Закона о високом образовању, Наставно-научно веће Машинског факултета на седници одржаној дана 26.04.2012. године, донело је следећу

О Д Л У К У

- Проф.др Слободан Јарамаз, ментор
- Проф.др Ђорђе Благојевић
- Проф.др Момчило Милиновић
- Проф.др Дејан Мицковић
- Др Дарко Васиљевић, виши научни сарадник, Институт за физику Београд

именују се за чланове Комисије за оцену и одбрану докторске дисертације **«ИСТРАЖИВАЊЕ МЕТОДА КОРЕКЦИЈЕ ТРАЈЕКТОРИЈА ПРОЈЕКТИЛА У ФУНКЦИЈИ ОД ПОВЕЋАЊА ЊИХОВОГ ДОМЕТА И ПРЕЦИЗНОСТИ»** докторанта **МР БОЈАНА ПАВКОВИЋА, дипл.инж.маш.**

Одлуку доставити: члановима Комисије, докторанту и архиви.

ДЕКАН
МАШИНСКОГ ФАКУЛТЕТА

Проф.др Милорад Милованчевић

УНИВЕРЗИТЕТ У БЕОГРАДУ
- МАШИНСКИ ФАКУЛТЕТ –
Број: 1612/2
Датум: 04.09.2014. године
Београд, Краљице Марије бр.16

На основу извештаја проф.др Слободана Јарамаза, ментора да је докторант мр Ивана Бјеловук, дипл.инж.маш., завршила докторску дисертацију "Форензичка анализа и моделирање карактеристика кратера насталог при површинској експлозији бризантног експлозива", предлога Катедре за системе наоружања и члана 128. Закона о високом образовању, Наставно-научно веће Машинског факултета на седници одржаној дана 04.09.2014. године, донело је следећу

О Д Л У К У

- Проф.др Слободан Јарамаз, ментор
- Проф.др Дејан Мицковић
- Проф.др Предраг Елек
- Проф.др Лазар Кричак, РГФ Београд
- Др Дарко Васиљевић, виши научни сарадник, Институт за физику Београд

именују се за чланове Комисије за оцену и одбрану докторске дисертације **«ФОРЕНЗИЧКА АНАЛИЗА И МОДЕЛИРАЊЕ КАРАКТЕРИСТИКА КРАТЕРА НАСТАЛОГ ПРИ ПОВРШИНСКОЈ ЕКСПЛОЗИЈИ БРИЗАНТНОГ ЕКСПЛОЗИВА»** докторанта **мр ИВАНЕ БЛЕЛОВУК, дипл.инж.маш.**

Одлуку доставити: члановима Комисије, докторанту и архиви.

ДЕКАН
МАШИНСКОГ ФАКУЛТЕТА

Проф.др Милорад Милованчевић

УНИВЕРЗИТЕТ У БЕОГРАДУ
- МАШИНСКИ ФАКУЛТЕТ –
Број: 1764/2
Датум: 03.10.2013. године
Београд, Краљице Марије бр.16

На основу извештаја проф.др Слободана Јарамаза, ментора да је докторант Ивана Тодић, дипл.инж.маш., завршила докторску дисертацију "Оптимално вођење у условима великих поремећаја и ограничених перформанси лета ракете", предлога Катедре за системе наоружања и члана 30. Закона о високом образовању (Сл.гласник 76/05, 100/07 и 44/10), Наставно-научно веће Машинског факултета на седници одржаној дана 03.10.2013. године, донело је следећу

О Д Л У К У

- Проф.др Слободан Јарамаз, ментор
- Проф.др Дејан Мицковић
- Др Бранислав Јојић, ред.проф. М.Ф. у пензији
- Проф.др Драган Лазић
- Др Дарко Васиљевић, виши научни сарадник, Институт за физику Београд

именују се за чланове Комисије за оцену и одбрану докторске дисертације **«ОПТИМАЛНО ВОЂЕЊЕ У УСЛОВИМА ВЕЛИКИХ ПОРЕМЕЋАЈА И ОГРАНИЧЕНИХ ПЕРФОРМАНСИ ЛЕТА РАКЕТЕ»** докторанта **ИВАНЕ ТОДИЋ, дипл.инж.маш.**

Одлуку доставити: члановима Комисије, докторанту и архиви.

ДЕКАН
МАШИНСКОГ ФАКУЛТЕТА

Проф.др Милорад Милованчевић

УНИВЕРЗИТЕТ У БЕОГРАДУ
- МАШИНСКИ ФАКУЛТЕТ –
Број: 107/4
Датум: 11.12.2014. године
Београд, Краљице Марије бр.16

На основу извештаја проф.др Слободана Јарамаза, ментора да је докторанд мр Милош Павић, дипл.инж.маш., завршио докторску дисертацију "Нови алгоритми вођења ракете земља-ваздух средњег домета", предлога Катедре за системе наоружања и члана 128. Закона о високом образовању, Наставно-научно веће Машинског факултета на седници одржаној дана 11.12.2014. године, донело је следећу

О Д Л У К У

- Проф.др Слободан Јарамаз, ментор
- Проф.др Момчило Милиновић,
- Проф.др Дејан Мицковић,
- Др Предраг Елек, ван. проф.,
- Др Дарко Васиљевић, виши научни сарадник, Институт за физику, Беорад,

именују се за чланове Комисије за оцену и одбрану докторске дисертације **«Нови алгоритми вођења ракете земља-ваздух средњег домета»** докторанда **мр Милоша Павића, дипл.инж.маш.**

Одлуку доставити: члановима Комисије, докторанду и архиви.

ДЕКАН
МАШИНСКОГ ФАКУЛТЕТА

Проф.др Милорад Милованчевић

УНИВЕРЗИТЕТ У БЕОГРАДУ
- МАШИНСКИ ФАКУЛТЕТ –
Број: 354/2
Датум: 15.3.2007.
Београд, Краљице Марије бр.16

На основу извештаја проф.др Момчила Милиновића, ментора, да је докторант мр Ненад Милорадовић, дипл.инж. завршио докторску дисертацију „Допринос систему управљања ватром и интеграцији оруђа за комбиновани артиљеријско ракетни ćистем блиске противваздушне одбране “, предлога Шефа Катедре за система наоружања и члана 128. Закона о високом образовању, Научно-наставно веће Машинског факултета на седници одржаној дана 15.3.2007. године, донело је следећу

О Д Л У К У

- Проф.др Слободан Јарамаз
- Др Дарко Васиљевић, научни сарадник (уместо др Данила Ћука, научног саветника у пензији, због формално правних немогућности)
- Проф.др Момчило Милиновић

именују се за чланове Комисије за оцену и одбрану докторске дисертације «**ДОПРИНОС СИСТЕМУ УПРАВЉАЊА ВАТРОМ И ИНТЕГРАЦИЈИ ОРУЂА ЗА КОМБИНОВАНИ АРТИЉЕРИЈСКО РАКЕТНИ СИСТЕМ БЛИСКЕ ПРОТИВВАЗДУШНЕ ОДБРАНЕ»** докторанта **мр НЕНАДА МИЛОРАДОВИЋА, дипл.инж.**

Одлуку доставити: члановима Комисије, докторанту и архиви.

ДЕКАН
МАШИНСКОГ ФАКУЛТЕТА
Проф.др Милош Недељковић

УНИВЕРЗИТЕТ У БЕОГРАДУ
- МАШИНСКИ ФАКУЛТЕТ –
Број: 563/2
Датум: 15.5.2008.
Београд, Краљице Марије бр.16

На основу извештаја проф.др Слободана Јарамаз, ментора докторске дисертације «Моделирање динамичке фрагментације у проблемима балистике на циљу» да је докторант мр Предраг Елек, дипл.инж. завршио докторску дисертацију, предлога Катедре за системе наоружања и члана 128. Закона о високом образовању, Научно-наставно веће Машинског факултета на седници одржаној дана 15.5.2008. године, донело је следећу

О Д Л У К У

- Проф.др Слободан Јарамаз
- Проф.др Ђорђе Благојевић
- Проф.др Момчило Милиновић
- Проф.др Дејан Мицковић
- Др Дарко Васиљевић, научни сарадник Института за физику, Београд

именују се за чланове Комисије за оцену и одбрану докторске дисертације **«МОДЕЛИРАЊЕ ДИНАМИЧКЕ ФРАГМЕНТАЦИЈЕ У ПРОБЛЕМИМА БАЛИСТИКЕ НА ЦИЉУ“** докторанта **мр ПРЕДРАГА ЕЛЕКА, дипл.инж.маш.**

Одлуку доставити: члановима Комисије, докторанту и архиви.

ДЕКАН
МАШИНСКОГ ФАКУЛТЕТА
Проф.др Милош Недељковић

УНИВЕРЗИТЕТ У БЕОГРАДУ
- МАШИНСКИ ФАКУЛТЕТ –
Број:486/2
Датум: 02.03.2017. године
Београд, Краљице Марије бр.16

На основу обавештења др Момчила Милиновића, ред.проф., ментора да је студент Саша Живковић, дипл. инж. маш., завршио докторску дисертацију **"СИСТЕМ ЗА УПРАВЉАЊЕ ВЕКТОРОМ ПОТИСКА ГАСОДИНАМИЧКИМ ИНТЕРЦЕПТОРИМА"**, предлога Катедре за системе наоружања, а сагласно члану 30. Закона о високом образовању („Службени гласник РС", број 76/2005, 100/2007 – аутентично тумачење, 97/2008, 93/2012 и 89/2013) и члану 36. Правилника о докторским студијама Машинског факултета, Наставно-научно веће Машинског факултета на седници одржаној дана 02.03.2017. године, донело је следећу

О Д Л У К У

- др Слободан Јарамаз, ред. проф.,
- др Момчило Милиновић, ред. проф., ментор
- др Дејан Мицковић, ред. проф.
- др Предраг Елек, ванр. проф.
- др Дарко Васиљевић, виши научни сарадник, Институт за физику, Београд

именују се за чланове Комисије за оцену и одбрану докторске дисертације **«СИСТЕМ ЗА УПРАВЉАЊЕ ВЕКТОРОМ ПОТИСКА ГАСОДИНАМИЧКИМ ИНТЕРЦЕПТОРИМА »** студента **САШЕ ЖИВКОВИЋА, дипл. инж. маш**.

Одлуку доставити: члановима Комисије, студенту и архиви Факултета.

ДЕКАН
МАШИНСКОГ ФАКУЛТЕТА

проф. др Радивоје Митровић

УНИВЕРЗИТЕТ У НОВОМ САДУ
МЕДИЦИНСКИ ФАКУЛТЕТ НОВИ САД
Служба за докторске студије
и специјализације
Број: 05-14/33 -2009.
Датум: 21.05. 2009

На основу члана 55. Закона о високом образовању (Сл.гласник РС, бр 76/2005,100/2007-аутентично тумачење и 97/2008) и члана 140. Статута Медицинског факултета у Новом Саду, на седници Наставно-научног већа која је одржана 21.05.2009.године донета је следећа

О Д Л У К А

Усваја се извештај комисије за оцену докторске дисертације др Татјане Пушкар под насловом **ХОЛОГРАФСКО ИСПИТИВАЊЕ ДЕФОРМАЦИЈЕ ЗУБНОГ ПАТРЉКА ЕНДОДОНТСКИ ЛЕЧЕНОГ ЗУБА У ТОКУ ПРИПРЕМЕ ЗА ПРОТЕТИЧКУ КРУНУ** и именује се комисија за одбрану у следећем саставу:

1. Проф. др Косовка Обрадовић-Ђуричић
2. Проф.др Драгослав Стаменковић, Стоматолошки факултет Београд
3. Проф.др Славољуб Живковић
4. Доц.др Љубомир Петровић
5. Др сц. мед Дарко Васиљевић, научни сарадник, Институт за физику Земун

Резервни чланови: Проф.др Александар Тодоровић, Стоматолошки факултет Београд и доц.др Душка Благојевић.

ПРЕДСЕДНИК ВЕЋА
Проф. др Стеван Поповић

УНИВЕРЗИТЕТ У БЕОГРАДУ
- МАШИНСКИ ФАКУЛТЕТ-
Бр: 1058 /1, 1010/1, 1031/1, 1032/1 и 1082/1
Датум: 05.07.2010.год.
БЕОГРАД – Краљице Марије бр. 16.

ЧЛАНОВИ КОМИСИЈЕ

1. др Момчило Милиновић, ред.проф
2. др Ђорђе Благојевић, ред.проф.
3. др Слободан Јарамаз, ред.проф.
4. др Дејан Мицковић, ванр.проф.
5. др Дарко Васиљевић, научни сарадник Института за Физику

На основу одлуке Изборног већа Машинског факултета бр 261/3 од 03.06.2010. године, изабрани сте за чланове комисије за подношење Извештаја о пријављеним кандидатима за избор у звање АСИСТЕНТА за УЖУ НАУЧНУ ОБЛАСТ ВОЈНО МАШИНСТВО - СИСТЕМИ НАОРУЖАЊА.

У прилогу достављам Вам пријаве кандидата:

Ивана Тодића, мр Ђуре Пађана, Мирка Карића, Марка Карића и Марко Холцлајтнер

са молбом да Извештај о пријављеним кандидатима за избор у звање наставника, сарадника, доставите декану Машинског факултета у року који не можи бити дужи од 60 дана од дана истека рока за пријављивање кандидата на конкурс, односно најкасније до 05.09.2010.године.

Конкурс за попуну радног места расписан је дана 16.06.2010.године у дневном листу «ПОСЛОВИ» а закључен је дана 01.07.2010. године.

Приликом писања реферата потребно је да се придржавате одредаба Закона о високом образовању и Статута Машинског факултета.

ДЕКАН
МАШИНСКОГ ФАКУЛТЕТА

Проф. др Милорад Милованчевић

УНИВЕРЗИТЕТ У КРАГУЈЕВЦУ
МАШИНСКИ ФАКУЛТЕТ У КРАГУЈЕВЦУ
Број: 01-365/1
22. 02. 2007. године
КРАГУЈЕВАЦ

На предлог Катедре за ПМ Машинског факултета у Крагујевцу и предате магистарске тезе кандидата **Наташе Весић, дипл. маш. инж.** под насловом „**УТИЦАЈ ТЕХНОЛОШКИХ ПАРАМЕТАРА ИЗРАДЕ НА ФОТОМЕТРИЈСКЕ КАРАКТЕРИСТИКЕ ДЕЛОВА ОД ПЛАСТИЧНИХ МАСА**“, Наставно-научно веће Машинског факултета у Крагујевцу, на основу члана 123 став 3 Закона о високом образовању (Сл. гл. РС бр. 76/2005) и члана 235 Статута Машинског факултета у Крагујевцу, на својој седници од 22.02.2007. године донело је

О Д Л У К У

Именује се Комисија за оцену писаног дела и усмену одбрану магистарске тезе, кандидата **Наташе Весић, дипл. маш. инж.** под насловом „**УТИЦАЈ ТЕХНОЛОШКИХ ПАРАМЕТАРА ИЗРАДЕ НА ФОТОМЕТРИЈСКЕ КАРАКТЕРИСТИКЕ ДЕЛОВА ОД ПЛАСТИЧНИХ МАСА**“ у следећем саставу:

1. Др Миодраг Лазић, ред. проф., Машински факултет у Крагујевцу
   Научне области: Производне технологије II, Метрологија, Систем квалитета
2. Др Дарко Васиљевић, стручни сарадник на Институту за физику у Београду
   Научне области: Оптика, Оптички инструменти
3. Др Бранко Тадић, ванр. проф., Машински факултет у Крагујевцу
   Научне области: Алати и прибори, Производне технологије II
4. Др Богдан Недић, ванр. проф., Машински факултет у Крагујевцу
   Научне области: Производне технологије II, Прерада пластичних маса, Неконвенционални поступци обраде
   -ментор

Достављено:Комисији, Кандидату, Архиви

ДЕКАН МАШИНСКОГ ФАКУЛТЕТА

Др Мирослав Бабић, ред. проф.

УНИВЕРЗИТЕТ У БЕОГРАДУ
- МАШИНСКИ ФАКУЛТЕТ –
Број: 354/3
Датум: 15.3.2007.
Београд, Краљице Марије 16

На основу члана 123. Закона о високом образовању и извештаја проф.др Слободана Јарамаза, ментора да је Бојан Павковић, дипл.инж. студент магистарских студија завршио магистарску тезу, Научно-наставно веће Машинског факултета у Београду на седници одржаној 15.3.2007. године, донело је следећу

О Д Л У К У

Именује се Комисија за оцену и одбрану магистарске тезе «**СИНТЕЗА ВОЂЕЊА ПРОТИВОКЛОПНЕ РАКЕТЕ МАЛОГ ДОМЕТА**» студента магистарских студија **БОЈАНА ПАВКОВИЋА**, дипл.инж. у саставу:

- Проф.др Слободан Јарамаз
- Проф.др Ђорђе Благојевић
- Др Дарко Васиљевић, научни сарадник (уместо др Данила Ћука, научног саветника у пензији због формално правних немогућности).

Одлуку доставити: члановима Комисије, студенту и архиви Факултета.

ДЕКАН
МАШИНСКОГ ФАКУЛТЕТА
Проф.др Милош Недељковић

УНИВЕРЗИТЕТ У БЕОГРАДУ
- МАШИНСКИ ФАКУЛТЕТ –
Број: 328/2
Датум: 22. 3. 2007.
Београд, Краљице Марије 16

На основу члана 123. Закона о високом образовању и извештаја проф.др Ђорђа Благојевића ментора да је Милош Павић, дипл.инж. студент магистарских студија завршио магистарску тезу, Научно-наставно веће Машинског факултета у Београду на седници одржаној 15.3.2007. године, донело је следећу

О Д Л У К У

Именује се Комисија за оцену и одбрану магистарске тезе «**ОПТИМИЗАЦИЈА ТРАЈЕКТОРИЈЕ ЛАСЕРСКИ ВОЂЕНЕ БОМБЕ ПРИМЕНОМ МОДИФИКОВАНОГ ЗАКОНА ПОТЕРЕ»** студента магистарских студија **МИЛОША ПАВИЋА**, дипл.инж. у саставу:

- Проф.др Слободан Јарамаз
- Проф.др Ђорђе Благојевић
- Др Дарко Васиљевић, научни сарадник Института за физику Београд (уместо др Данила Ћука, научног саветника у пензији због формално правних немогућности).

Одлуку доставити: члановима Комисије, студенту и архиви Факултета.

ДЕКАН
МАШИНСКОГ ФАКУЛТЕТА
Проф.др Милош Недељковић

УНИВЕРЗИТЕТ У БЕОГРАДУ
- МАШИНСКИ ФАКУЛТЕТ –
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Београд, Краљице Марије 16

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Одлуку доставити: члановима Комисије, студенту и архиви Факултета.

ДЕКАН
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Ovim potvrđujemo da su na projektu Evropske unije FP6

REINFORCING RESEARCH CENTER FOR QUANTUM AND OPTICAL METROLOGY
Project no. 026322
Project acronym QUPOM

učestvovali

Prof. dr Branislav Jelenković, rukovodilac projekta
Dr Dejan Pantelić
Dr Mirjana Popović Božić
Dr Nikola Burić
Dr Dušan Arsenović
Dr Zorica Jakšić
Dr Aleksander Kovačević
Dr Dragan Lukić
Dr Branka Murić
Dr Svetlana Savić Šević
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Dr Vladimir Damljanović
Mr Aleksandar Krmpot
Jelena Dimitrijević
Zoran Grujić
Marina Mijailović
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Ovim potvrđujemo da su na projektu u okviru programa naučno-tehnološke saradnje između Republike Srbije i Republike Slovenije **„Laserske tehnike za praćenje aerosola i ispitivanje gasova staklene bašte"** (337-00-167/2006-01/16) učestvovali istraživači:

Mirjana Tasić, rukovodilac projekta
Zoran Mijić,
Slavica Rajšić,
Darko Vasiljević,
Bratimir Panić,
Dragan Markušev,
Mijajlo Rabasović,
Ilija Belić,
Velibor Novaković.

Datum:
07.07.2010

Rukovodila Projekta:

Dr Mirjana Tasić

Direktor Instituta za fiziku:

Prof.dr Dragan Popović

Scientific and technical information

1. Summary

In this project the teams of Prof. Antoine Weis at Université de Fribourg (Partner 1, coordinator), Prof. Brana Jelenkovic at University of Belgrade, Serbia (Partner 2), and Dr. Todorka Dimitrova at University of Plovdiv, Bulgaria (Partner 3) will join forces to bring experiments and research results from modern optics, laser physics, and laser spectroscopy to the teaching environment, both as lecture demonstration and in student laboratory experiments.

Any high level teaching of physics at the university level has to build on a solid knowledge of classical physics. In most European universities the teaching of introductory classical physics is accompanied by lecture demonstration experiments, whose main aim is to show basic physical phenomena to the students and to illustrate the experimental techniques that allow the observation (and quantitative measurement) of physical processes. In general, lectures are complemented by student laboratories in which students get acquainted first with the basic experimental techniques, and later with the application of those techniques to specific quantitative experiments. However, for teaching modern (20^{th} century) physics – in particular modern optics and elementary quantum mechanics – demonstration experiments become scarce, and lectures become progressively purely theoretical teaching units. This is even more marked in advanced classes, in which students are introduced into the state of the art in research. The internet offers a wealth of information, sometimes illustrated by practical simulations, and many of us make use of it for illustrating theoretical concepts in advanced lectures. Nevertheless, the partners of the present project strongly believe that the best of simulations will never be a substitute for the didactical advantages of illustrative hands-on demonstrations or student laboratory experiments.

It is therefore our declared goal to develop specific lecture demonstration and student laboratory experiments in which laser radiation plays a fundamental role. The topics to be attacked are subdivided into two categories: *Modern optics and laser physics* and *High resolution laser spectroscopy*, and a total of 21 subtasks will be attacked, mostly in bilateral collaborations.

All three partners teach regular courses on modern optics and applications thereof. Partner 1 (coordinator) and 2 share a common research interests in the fields of laser and magneto-optical spectroscopy and have a strong wish to bring demonstrations thereof to their classrooms and student labs. Partner 3 is mainly involved in teaching at a university, in which research plays a subordinated role due to the very limited local funds. Partners 1 and 3 have collaborated in the past in developing demonstration experiments at the borderline of classical and quantum optics.

The teaching equipment and student laboratories at the universities of both Eastern European partners (and to a lesser extend of the Swiss partner) are in strong need of renovation and modernization. The present project offers the opportunity to contribute to this goal. A particular attention will be given to realize the different experiments in a modular way, using fiber optics, so that various components can be used for several applications. Since demonstrations are only shown on a few occasions during the year, the modular design will allow the use of certain components for student research projects during most of the year. To our knowledge there are no national/international funding programs that support activities of the type envisioned here and the Scopes seems to us a unique opportunity to launch such an effort.

Most of the activities will be carried out by young students and researchers under the guidance of experienced researchers.

2. Research plan (max. 20 pages)

2.1 Describe the current state of research in the field. Please mention the most significant publications written by other authors.

Current state of research in the field

After the final decades of the 20th century were marked by the development of electronics, down to the nano-electronic scale, the 21st century has set out to become the century of photonics, in which photons take over the role played by electrons in the past. The field of photonics has already produced spectacular new technologies, and will definitely continue to do so in the future.

The rapid pace at which the field of photonics advances creates an urgent need for the formation of scientists (mainly physicists) and technicians skilled in the art of modern optics. Standard university level teaching curricula touch on the field of classical and modern optics, but rarely go beyond that topic, except for specialized courses at the master and postgraduate level. It is well accepted that the post-graduate teaching of novel state-of-the-art technologies and theories requires the students to have acquired during their preceding studies a solid theoretical (and practical) basis of knowledge. New knowledge cannot be built on shaky grounds! The basis for entering the field of photonics is laid by a solid understanding of the fields of quantum mechanics and modern optics.

Lecture demonstrations for visualizing the physical phenomena and student laboratories both play a role of undisputed importance in the teaching of physics. All of the applicants of the present proposal are heavily engaged in teaching various aspects of the foundations and applications of modern optics, and in the development of student laboratory experiments. Demonstration experiments in classical physics (usually taught during the first 2-4 terms of university studies in physics) are numerous and they are part of the teaching at all 3 home institutions. However, demonstration experiments in the fields of modern optics, including laser physics are scarce. If one browses, for instance, through the catalogues of companies producing teaching equipment, one finds only very few products which are suited for advanced lecture demonstrations.

In communist times there were strong relations between universities and industry in Eastern European countries. Industrial needs often defined the number of students in different branches and in dictated in large parts the offer of specialized university courses. Industry also offered good conditions for the practical training of students. In this way the universities were producing specialists, suitable for the needs of industry. Today, in the post-communist time, those connections are all broken, and studies have become mainly theoretical. The preparation of the students for a professional career in industry is very far from practical needs – a fact which keeps many young people from studying physics (and other branches of natural sciences).

The fast development of novel technologies requires an adapted education and the involvement of new specialized disciplines. Obviously, university teaching in Eastern Europe is not able to offer its students corresponding demonstration and laboratory equipment and most of the modern courses are mainly theoretical. This is not only valid for the developing countries, but also partly for highly developed countries such as Switzerland.

The goal of the present proposal is to bridge this gap, at least in parts.

2.2 For each Swiss applicant and applicant from Eastern Europe, elaborate their past performance in the research fields. Please mention the most important publications.

Partner 1, Coordinator (U Fribourg)

Research and teaching: The applicant, Antoine Weis, has been working in the field of atomic physics, optics, and laser spectroscopy for more than 25 years. The Fribourg Atomic Physics Group (FRAP) headed by A. Weis was founded after his appointment to the chair of Atomic Physics at the University of Fribourg in 2000. The current research activities of FRAP focus on the investigation of weak and strongly suppressed fundamental processes in spin-coherent atomic ensembles using high resolution laser spectroscopy combined with magnetic resonance. In recent years he has contributed significantly (15 papers) to the field of laser-driven high sensitivity atomic magnetometers that have produced today's most sensitive (10 $fT/Hz^{1/2}$) Cs magnetometer. Multi-sensor arrays of such magnetometers are now being used by FRAP for mapping the magnetic field distribution of the human heart [BIS03, WEI05] and for controlling spatio-temporal magnetic field variations in a new search for a permanent electric dipole moment of the neutron [REF]. A. Weis has taught 8 different lectures (introductory first and second semester physics, atomic spectroscopy, high resolution laser spectroscopy, modern optics, polarized light and atoms) since 2000 and has written more than 400 fully typeset pages of lecture notes on modern optics and laser spectroscopy. He is currently preparing a physics textbook on laser spectroscopy and nonlinear magneto-optics. He devoted many after-hours for developing new laboratory experiments for beginners (Michelson interferometry) and advanced (high resolution laser spectroscopy, double resonance spectroscopy, optically detected Stern-Gerlach effect) student laboratories. He wrote detailed instruction manuals for three of those experiments. A. Weis has also published 13 (refereed) demonstration modules for the Mathematica Demonstrations Project (http://demonstrations.wolfram.com/) in the field of optics and atomic physics and was Featured Contributor of that Project in March 2009.

Modern optics: In 2005 – in the frame of activities for the International Year of Physics – A. Weis further developed his previous lecture demonstration module [WEI03] for illustrating the double slit experiment carried out by individual photons detected by a single-photon imaging CCD camera [DIM08]. That experiment has been shown on at least 20 different occasions to various audiences, ranging from lectures to conference and other public manifestations. A recording made by that system was chosen to illustrate the front page of the February 2008 issue of the American Journal of Physics [DIM08]. Together with Partner 3 (U Plovdiv) he has developed in recent years another demonstration experiment on the wave-particle duality of light based on single photon interference in a Mach-Zehnder interferometer [DIM08]. Later, Partner 3 and the coordinator extended that set-up for demonstrating the phenomenon of quantum erasing on a photon-by-photon basis [DIM09]. Fascinated by our demonstrations of that device, several universities have ordered copies of the modules from the University of Fribourg. These modules are now operational as lecture demonstrations at EPF-Lausanne, ETH-Zurich, U Bonn, U Plovdiv, U Fribourg, and in advanced student labs at EPFL-Lausanne. A. Weis, together with Partner 3 has developed (including writing of an instruction manual) a beginners laboratory experiment on interferometry.

Laser spectroscopy: A. Weis has a 23 year old expertise in high resolution laser spectroscopy (more than 100 refereed publications) of atomic media (alkali vapors and beams and solid helium-trapped alkalis), with a strong focus on resonant magneto-optical spectroscopy. His papers were cited more than 1300 times and he has an h-index of 20. He is co-author of a comprehensive oft cited review article on resonant nonlinear spectroscopy [BUD02]. He teaches lectures on laser spectroscopy at the master level (both compulsory and elective courses). Of the 4 experiments for student laboratories that he has developed in the past 9 years, three touch laser spectroscopy: *High resolution laser spectroscopy*, *Optically detected magnetic resonance*, and *Optically detected Stern-Gerlach experiment*. These specific experiments are adapted for laboratory exercices, but were not designed to be portable for their demonstration during lectures.

Partner 2 (U Belgrade)

Research and teaching: Research conducted in the Photonics Center of the Institute of Physics in Belgrade covers two main areas of basic research: quantum optics and holography. In quantum optics coherence effects in atomic Rb vapour are studied both experimentally and theoretically. Partner 2 (Brana Jelenkovic) and his team investigate such effects as coherent population trapping (CPT), electromagnetically induced transparency (EIT) [AKA06, RAD08], electromagnetically induced absorption (EIA) [MIJ07, DIM08a, DIM08b] and non-linear magneto optical effects [GRU09]. As part of our effort to promote education in the field of photonics in Serbia and in the larger region to a higher level, we have organised two international schools and conferences in Quantum Optics: The *International School and Conference on Optics and Optical Materials* - ISCOM07 (http://iscom.phy.bg.ac.rs/) and the *15th Central European Workshop on Quantum Optics 2008* (http://cewqo08.phy.bg.ac.rs/). The aim of those conferences is to familiarize colleagues and students from Serbia with the latest progress in the field. We are currently preparing the *II International School and Conference on Photonics*, to be held from 24-28 August 2009 in Belgrade (http://photonica09.phy.bg.ac.rs/). Brana Jelenkovic teaches Quantum Optics and Biophysics courses for graduate students at the Electrical Engineering Faculty of U Belgrade. He also teaches Experimental Methods of Quantum Optics and Applied Quantum Optics courses at the Physics Faculty of U Belgrade. Together with Dejan Pantelic, a colleague from the Photonic Center (co-participant of this proposal), he currently writes a textbook on Applied Optics (in Serbian).

Modern optics and laser physics: The team of Partner 2 has a significant expertise in laser physics, laser applications and manufacturing. Several types of lasers have been constructed and used both for research and for industry. In that respect we mention Nd:YAG-lasers used for spot welding and marking that were developed at the Institute of Physics in Belgrade [BEL92]. Nd-YAG lasers for range finding purposes were developed too. We have constructed a diode pumped Nd-YAG laser (operated at the fundamental and first harmonic) as part of a length standard project [PAN97]. A stabilized He-Ne laser was developed and is used as a primary length standard of Serbia [PAN03]. Currently, students from the Physics faculty and Electrical Engineering faculty of the University of Belgrade, visit short courses, demonstrations and exercises at the Photonics Center, normally conducted by PhD students of the Center. Students are taught first about principles of solid state lasers, optical pumping, hole burning, saturation spectroscopy, linear and non-linear Faraday effects. Next they are shown, in the research laboratories of the Center, how those phenomena look like, typically by observing signals on oscilloscopes. With the project we propose here, they should be able to work on related set-ups and produce themselves the phenomena they learned about. The Center also has a standing expertise in the field of holography, focused on developing new sensitized holographic photosensitive materials based on organic polymers, processed for the recording of surface relief holograms that can be used for mass production of holograms using embossing techniques and composite material master holograms. We have been using holographic interferometry (dual-exposure or real-time) to measure deformations of various biological structures (like teeth).

Laser spectroscopy: Brana Jelenkovic has worked in the field of ultra high precision spectroscopy since 1997 when he joined the group of Dave Wineland at NIST in Boulder. After his return to Belgrade in 2003, he has started research on the high resolution spectroscopy of dark states, EIT and EIA. More recently his group has obtained strong EIT narrowing using Raman-Ramsey effects. Spectroscopic experiments require a stable laser frequency, and a precise manipulation of laser light properties, like spatial beam profiles, beam waists, polarization, and coherence lengths. Two laser beams required for generating coherence effects in the atomic ground state hyperfine levels or Zeeman

sublevels need to be phase locked. The modules for student exercises, proposed here, will be designed and constructed thanks in large part to the knowledge that Partner 2 has obtained while setting up experiments in quantum optics that will be profitable for the development of the lecture demonstrations and student laboratory experiments proposed here. Our intensive experimental work on laser spectroscopy of rubidium vapour has led us to learn how to make, use and maintain extended cavity diode lasers.

Partner 3 (U Plovdiv)

Research and teaching: Todorka Dimitrova got her Ph.D. degree from the University of Palermo, Italy in 2001 in the field of polymer blends. She planed to continue this work at U Plovdiv after her return. Unfortunately, during the transition the local polymer group at U Plovdiv stopped its activities due to over-aged equipment and the shut-down of factories and institutions providing equipment for that research. The connection with those institutions was also used to conduct student labs in the physics of polymers. T. Dimitrova obtained a master degree in Applied Optics from the University of Sofia and has since specialized in modern optics, developing lecture demonstration and student laboratory experiments in optics, both with teams of U Plovdiv and with Partner 1 in Fribourg since 2006. That fruitful collaboration has produced spectacular demonstration experiments on the wave-particle duality of light and of quantum erasing (among others). These demonstration and laboratory experiments are accompanied by good methodical descriptions and manuals. T. Dimitrova is very devoted to the methodical and didactical aspects of teaching equipment. She has experience in teaching all parts of general physics (mechanics, molecular physics and thermodynamics, electricity and magnetism, optics). She teaches lectures, problem solving classes, student laboratories, and holds seminars at all levels. For all subject she teaches she has written the necessary methodical materials like lecture notes, instruction manuals etc. Currently, she teaches a specialized course of lectures in photometry and colorimetry. A course of lectures on interferometric measurements is in preparation. Recently she started collaboration with Tinko Eftimov at U Plovdiv in the fields of polarization-sensitive intermodal interference in optical fibers, optical fiber sensors, fiber gratings, and polarimetry in optical fibres. T. Dimtrova also has followed in recent years several formation courses in the field of Science Communication, mostly organized by the British Council.

Modern optics: Todorka Dimitrova, together with a team of Plovdiv University, have developed several demonstration experiments in spectroscopy, light polarization and the classical Faraday effect as well as two student laboratory experiments on light polarization using conventional (and rather old) equipment. In 2006 she started to collaborate with A. Weis (Partner 1) on different projects in modern optics. Together, they developed a lecture demonstration experiment on wave-particle duality of light [DIM08], based on a Max-Zehnder interferometer (se above text of coordinator). Using the same apparatus they have settled a new demonstration experiment [DIM09] on quantum erasing – one of the few world-wide available lecture demonstration experiments in quantum optics. Another experiment showing the main principle of telecommunication (optical communication of audio signals) by (analog and digital) modulation of the injection current of a laser diode by radio or MP3-audio signals, transmitting the laser light through space and photodiode detection and demodulation was developed. A student laboratory experiment in the field of interferometry was built for U Fribourg (see text of coordinator).

Laser spectroscopy: Recently, Partner 3 started to work on polarization-sensitive intermodal interference in optical fibers and optical fiber sensors. Together with T. Eftimov she developed and tested a simple and low-cost scheme for the interrogation of an all-fibre intermodal sensor. For this a 650 nm laser diode, operated below threshold, is sent through a few mode communication fibre

sandwiched between input and output sections of a single mode fiber. Physical (stress-strain or temperature induced) changes in the sensing fiber (glued to an elastic beam) are detected by spectral analysis using a linear CCD array in combination with a diffraction grating.

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2.3 Significance of the planned research for the scientific community.

The rapid pace at which modern science evolves and the shortening of the time lapse between a novel development in scientific research and its implementation into industrial products creates a need for rapid adaptation of the education and training curricula at universities and technical universities. Photonics, as a key technology of the 21st century relies on modern optics.

In most European universities teaching equipment is over-aged, and only major universities (such as the Federal Technical Highschools, ETHZ/EPFL, in Switzerland, for instance) have sufficient funds to have their teaching equipment keep track with the rapid emergence of novel technologies. Smaller universities, as the one of the partners of the present project, experience many difficulties in this respect. Their researchers prefer to invest their time, money and effort into their research, rather than investing it into the less rewarding (and often not publishable) development of teaching equipment.

The present project is aimed at developing new teaching aids in the fields of modern optics, in particular in laser physics and in several aspects of laser spectroscopy. The products of this research will be specific lecture demonstration experiments and specific student laboratory experiments. While most universities have a standard set of "classical" student laboratory experiments, there is strong need for modernizing the collection of such experiments by replacing older experiments, i.e., experiments based on older technologies, by experiments addressing modern research topics, and, more importantly, using state-of-the-art modern equipment. A classical experiment, such as the measurement of the Faraday effect, for instance, is much more attractive for a young student, when carried out with laser radiation and modern optical components, than with old-fashioned discharge lamps. Some of the experiments to be developed here will be "classical" experiments, to which novel technologies shall be applied.

The results of our developments will be presented in specialized journals, describing in great detail the mechanical, optical, and electronic components. In this way our research and development work can be shared with a maximum of possible users. If sufficient funds are available, universities often chose a commercial solution for their educational needs. However, in the field of modern optics there a few commercially available products that are suitable for lecture demonstration, and even less so, for student laboratory experiments.

The significance of teaching equipment in modern optics developed here is multi-fold:

- The detailed description of the modules that we aim at will help other scientist for the rapid realization of identical copies, without needing to invest research and development time.

- The use of the modules by the students will give them a hands-on training with modern research equipment in the field of modern research, by which they will develop suitable skills for their later integration into academic research or in industry.

- The possibility to work with modern equipment is a strong motivation for students to specialize in experimental physics, and in particular in optics. The role of mouth-to-ear propaganda between university students (or between university and high-school students) should not be underestimated regarding the decision of young people to select a specific branch for their studies.

Of course the aspects addressed here are only one building block in the global effort to render studies in science, and in particular in physics, more attractive for young people. It is the sum of all related efforts which will eventually achieve this goal.

The research of this proposal will have important consequences for the scientific community in Serbia and Bulgaria because it may directly influences the growth of number of physicists and researchers in nowadays important multidisciplinary fields, like biophysics, biomedicine, ecology and environmental protection. Currently, at the universities in the region of South-East Europe only few undergraduate courses in optics are offered. Although photonics has become an important area in scientific research and industrial production, very little of the field, is taught to students in Serbia and Bulgaria and the larger SE European region. The development of modern laboratory experiments in the frame of this project will bring (partial) remedy to this situation. The existence of well-done set-ups for various demonstrations of phenomena in modern optics and photonics and well-prepared challenging student laboratory experiments will stimulate faculties to increase the number of courses on photonics. The intriguing properties of laser radiation, together with its unique applications fascinate students all over the world. Offering the students convincing demonstrations and meaningful hands-on experiments based on laser light (backed up of course by theoretical lectures) is the best advertising argument to attract student to the field of photonics. We believe that projects like the present will have a positive avalanche effect: more students will graduate in optics and optics related multidisciplinary fields, they will join academia at high schools or at universities, and there introduce modern optics courses on topics they learned to love and which they remember from the student experiments they performed in the optics laboratories of the partner institutions.

2.4 ***Detailed research plan. Please mention the objectives and goals, the methods of investigation, the available data, the data to be collected.***

The main objective of the project is the realization of a set of lecture demonstration and student laboratory experiments in *Modern optics and laser physics* and in *Laser spectroscopy*. For this purpose the three partners will collaborate mainly in bilateral (sometimes trilateral) ways to join their common and complementary expertise from their different, but related, fields of specialization.

Although the development of teaching equipment may sound as having little a common with "pure" research, we want to stress here that this works requires trained and experienced scientists. We will address in large parts top-modern technologies, and the transfer of research laboratory techniques into teaching modules that are stripped down to the strict minimum of components in order to enhance the didactical aspects. In our opinion his activity can be termed as scientific research, since it will involve original research and engineering solutions that are adapted to fulfil methodological criteria.

A special effort will be dedicated to the realization of compact (i.e., easy to transport) modular set-ups, in which, e.g., one or several laser light sources delivering light to one of several fiber couplers can be easily connected to the actual experimental set-ups. The synergy thus gained will allow using several components in a variety of applications, allowing a fast switching. Each individual set of components will be mounted on a dedicated metal board (typically of 20-30 cm side length). This will not only ease transportation within institutes, but also between institutions during exchange visits. Wherever possible, all three partners will rely on using (professional research-grade) components from the US-based company Thorlabs in order to guarantee compatibility of the individual modules.

Most of the spectroscopic experiments rely on exciting either the D1 or the D2 transition in alkali vapors (Cs in Fribourg, Rb in Belgrade). Tunable diode laser are convenient light sources for this type of experiments. Although the laser diode cost in general less than 50 EUR, their operation requires an extremely stable injection current source and an active stabilization and control of the operating temperature. Thorlabs sells a complete package including current source, temperature control electronics and a diode mounting housing for less than 2500 $. When using different lasers one can either change the diode or purchase additional diode housings which cost less than 500 $. In their simples configuration the diodes in those systems are free running, which should be sufficient for the magneto-optical experiments, where magnetic field, rather than laser frequency is scanned. These Thorlabs modules can be upgraded to so-called ECDL (external cavity diode laser) configurations which has the advantage of narrowing the spectral width of the emitted radiation, with the drawback of a reduced frequency scan range. Partner 1 is interested in comparing the performance of free running vs ECDL laser in some of the applications mentioned below.

In detail we want to realize the following projects:

Laser physics

Module LP-1: Nd:YAG laser

The Nd:YAG laser is a most important solid state laser which can be operated in continuous wave (cw) and pulsed mode. In its pulsed version it is the most widely spread industrial laser. It also plays a prominent role in many other areas of research, in particular in spectroscopy, where it is often used as pump laser for other (tunable) lasers. The Nd:YAG laser has a simple 2-mirror structure and is thus well suited for demonstrations. Here we propose to build a student laboratory experiment, in which the students learn to set-up, align and study a cw realization of this type of laser. The construction will be done on an optical rail bench enabling easy optics mounting and reconfiguration. A 808 nm diode laser will pump the Nd:YAG crystal in a basic two-mirror resonator configuration. Excitation is done axially, using an anamorphic collimating lens system for collimating the pump light. The laser diode is powered using a regulated current source with necessary spike protection and soft start.

Module LP-2: Helium-Neon laser
For many decades the He-Ne laser (the first gas laser ever built) has played a prominent role in many applications. Nowadays its utility is often superseded by the use of low-cost solid state diode lasers, which have undisputed practical advantages. Nevertheless the He-Ne laser is one of the best examples for introducing students to the basics of laser physics, since its macroscopic structure and visible radiation are well adapted to that purpose. Here we want to realize a He-Ne laser based on discrete components, i.e., He-Ne discharge tube with Brewster windows inserted in a hemispherical resonator consisting of a plane high reflectivity mirror and spherical, partly transmitting mirror (output coupler). In a laboratory experiment the student can learn how to align the laser and to experience the thrill when laser oscillation sets in (each laser builder remembers very well his "first time", i.e., how excited he/she was when he/she first succeeded in bringing a laser above threshold). When inserting thin (horizontal and/or vertical) wires into the resonator one can force the laser to oscillate on specific higher order transverse modes which can be displayed in a lecture by wall projection. Partner 1 (coordinator) has preliminary expertise in this field that he wants to expand (modeling the exact positions and spacing of the mode wires) and share with partners 2 and 3. If funds permit it, the same system can also be used to display the longitudinal mode structure (the He-Ne typically oscillates on a few modes) using a scanning Fabry-Pérot, and to force single mode oscillation by insertion of an etalon.

Module LP-3: Laser gyroscope
In contrast to a two-mirror laser resonator in which the lasing modes form standing waves, the modes in ring laser resonators formed by 3 or more mirrors are running waves. In a ring laser each modes is thus doubly degenerate into two counter-rotating running waves of equal frequency that will emerge from the output coupler under different angles. If the resonator (i.e., its board) is rotated at frequency Ω around an axis perpendicular to its plane, the frequencies of the two output beams experience shifts $\delta\omega$ of opposite signs that are proportional to Ω and the area enclosed by the resonator (Sagnac effect). By interfering the two beams, the difference frequency can be extracted as a beat note and rendered acoustically by a loudspeaker. Partner 1 will design and realize such a gyroscope based on a He-Ne amplifier in a 3-mirror resonator, based on the same type of He-Ne discharge tube as in module LP-2. The module LP-3 will be used for demonstration experiments and will be displayed in the entrance hall of the physics building at U Fribourg. Copies of the module will be produced by Partners 2 and 3 at their own cost.

Modern optics

Module MO-1: Wave-particle duality of light: double slit experiment
The double slit experiment is the one crucial experiment at the interface of classical and quantum physics. It can be interpreted both in terms of light waves and of light particles (photons). It is probably true to say that on a world-wide level there is no single university physics curriculum that does not present the famous discussion of the double slit experiment with single particles that is so well described in Feynman's textbook on Quantum Mechanics. The wave-particle duality within the now generally accepted Copenhagen interpretation of quantum mechanics is solved by accepting that light has simultaneously wave-like and particle-like properties. For many students, however, this idea is difficult to accept and there is no better way to expose them the general idea than a nice demonstration experiment. However, until very recently no convincing demonstration experiment was available and the student's understanding (and belief) had to rely on Gedanken experiments outlined at the blackboard. As mentioned elsewhere in this proposal Partners 1 and 3 have developed in the past a convincing experiment that illustrates the simultaneous presence of wave and particle properties of light. However, that experiment is quite bulky and rather transportable than portable. Many aching backs after our demonstrations all over Switzerland have led us to plan the design of a truly portable version of the experiment based on double slit interference with photomultiplier detection. We want to realize such a device, whose details we do not want to disclose here.

Module MO-2: Wave-particle duality of light: Portable quantum eraser
Partners 1 and 3 already have realized a quantum erasing experiment on the basis of a Mach-Zehnder interferometer. In quantum erasing the two possible classical paths of the photon are labeled by orthogonal linear polarizers, which makes interference disappear since the photon carries which-way information. However, that information can be erased after the photon has left the interferometer, thus making interference reappear. When performed with individual photons this effect is known as quantum erasing. As said above, our previous device is bulky and not very portable. We now have an idea – again not disclosed here – on how a truly portable compact device displaying single-photon quantum erasing can be realized. The device will be so compact and light-weighted that it can easily be taken to conferences.

Module MO-3: Optical tweezers
The scattering and gradient (dipole) forces of light on small dielectric particles was first demonstrated by Ashkin in 1970. A strongly focused (non-resonant) laser beam provides a harmonic restoring force on micron and sub-micron-sized dielectric particles that attract the particles to the laser focus, thus opening the possibility to grab and move the particles by manipulation of the light beam (optical tweezer). The trapped particle can be as small as an atom. These forces (in the range of pN) depend on the relative indices of refraction of the particle and its surrounding, and on the optical intensity gradient. Most prominent applications are the trapping of cold atoms in periodic light structures and the manipulation of biological systems, such as DNA, proteins, and enzymes. When the diameter of the trapped particle is larger than the trapping laser's wavelength, the trapping mechanism can be explained using ray optics. Here we will develop a simple lecture demonstration module of optical tweezing, using an infrared trapping laser beam focused to a few tens of μm for trapping and manipulating sub-mm particles of different materials (index of refraction). The motion of the particles will be registered by a CCD camera that will allow to visualize the Brownian motion that is spatially confined by the trapping potential.

Module MO-4: Interferometers
Interference is an important part in the teaching of classical optics whose main role is to introduce the basic concepts of wave superposition and coherence. There is a great variety of interferometer types. Here we shall concentrate on a few types of so-called two-path interferometers, such as the Michelson interferometer, the Mach-Zehnder interferometer, and the less well known Jamin interferometer and Rojdestvenski interferometer. We shall realize all 4 types of interferometers that will be used by the 3 partner institutions in lecture experiments and in student labs, according to their local needs. Besides illustrating the interferometer principles and the specific properties of each type, the devices shall be used to perform different measurements, such as the index of refraction of gases, liquids and glasses, the thickness and homogeneity of transparent objects, the laser wavelength. Again we aim a high degree of modularity by pre-aligning each interferometer on its own board, the laser source(s) on a separate board (see also module MO-5), all connected by fibers. We are going to build the interferometers by the use of very precise optical and mechanical components (from the company Thorlabs) that will result in professional-grade interferometers that can also be used for research purposes.

Module MO-5: Polarized light
This student lab experiment is aimed at measuring, altering and describing the state of polarization of a laser beam. The light delivery board (LO-3) will contain different low-cost diode laser sources (green, red, infrared), all coupled to individual fiber injectors; the same MO-5 board can be used for the interferometry experiments (module MO-4) and for the linear magneto-optical experiments (module MO-6). First the light is injected into a polarization maintaining (PM) single-mode fiber with a polarization rotator in front of the fiber to identify its birefringence axis. The light from the PM fiber will then be coupled to a highly multimode optical fiber to obtain partially or completely depolarized light that will be collimated and used for the actual manipulations and measurements. Various experiments can then be performed, such as the measurement of Fresnel coefficients, determination of

the Brewster angle, effect of Polaroid sheets, measurement of birefringence in different materials and their wavelength dependence. The module is well suited to introduce the students to the Jones, the Stokes, and the Müller formalisms, and all corresponding parameters of light of known/unknown polarization shall be measured.

Module MO-6: Linear (non-resonant) magneto-optics

Magneto-optics deals with the study of alterations of the optical properties of materials when they are exposed to a magnetic field. It is an important part of modern optics with many applications in modern technologies and telecommunication. The Faraday effect deals with the rotation of the plane of polarization of light propagating along the direction of the field, while the Voigt effect describes alterations of the polarization due to a transverse magnetic field. The Faraday angle $\varphi = V\,H\,L$ is proportional to the field strength H, the sample length L, and the (material and wavelength dependent) Verdet coefficient V. The linear Faraday (Voigt) effects in different solid and liquid substances exposed to longitudinal (transverse) magnetic fields will be demonstrated and studied. The Verdet constant will be measured and its wavelength dependence will be demonstrated and evaluated. Both the method of crossed polarizers and the method of polarizers oriented at 45 degrees with balanced differential detection shall be used, and their relative merits and drawbacks studied. The crossed polarizer method yields signals proportional to the square of the Faraday angle ϕ_F, while the 45 degree method yields a signal linear in ϕ_F. The latter technique thus has a superior sensitivity for detecting small rotation angles ($\phi_F << 1$). The polarizers, sample and detectors shall be mounted on one board, while light will come from the multi laser board (developed in module MO-5). The 45 degree technique shall be implemented into a compact building block with dedicated electronics that will be used in the modules LO-4 (DAVLL), LM-2 (resonant linear Faraday effect), and LM-3 (resonant nonlinear Faraday effect).

Module MO-7: Holography

Holography is an excellent topic for introducing many important principles of optics: diffraction, interference, coherence, speckles, etc. In addition, holography has many applications in physics and technology: 3D-imaging, interferometry, information processing, velocimetry, laser physics, security, etc. Contemporary holography is not only a science, but a technique, technology and art, occupying almost every aspect of life. Holograms are ubiquitous as eye-catching protections and wrappings for various products and documents. They are well known from security tags on credit cards. By better university education future professionals will use holography in more efficient and creative ways. A simple modular setup for holographic demonstrations will be designed covering various techniques from basic to advanced levels. It will be suitable for experiments in both classical and digital holography. The holography board will be composed of several blocks: block with variable beam splitter, optical board with passive vibration isolation, hologram registration block and a set of optical mounts and optical components. The research will be directed towards the development of easily adjustable, and mechanically robust and reconfigurable system. A set of basic experiments in classical and digital holography are foreseen. A 408 nm laser diode or a frequency-doubled Nd:YAG laser will be used for this module.

Module MO-8: Fiber optics

These demonstrations will cover a variety of optical fibers: single-mode, few-mode and multimode. Both glass, glass-polymer and polymer fibers will be used. The characteristics and effects to be demonstrated are: fiber excitation, numerical aperture, bending losses, mode conversion, mode mixing, selective excitation, polarization preservation. Optional is the demonstration of wavelength dependent attenuation. A model of a bulk-optic fiber splitter and coupler will be included as well as all-fiber splitters and couplers. The assembly of simple interferometer arrangements using fiber splitters/couples will be considered. A 100-200 mW DPSS laser at 532 nm or 650 nm will be used for these experiments.

Laser spectroscopy: Optical spectroscopy

Module LO-1: Digital camera-based spectrometer
Although commercial companies offer compact (often fibre coupled) grating spectrometers that can be connected to a PC via the USB port, the cost of such devices is often beyond the financial possibilities of small universities. Here we propose to combine a handheld see-through grating spectrometer which costs less than 50 EUR with a low-cost digital camera to display directly spectra of different light sources by a multimedia projector (beamer). Preliminary experiments by Partners 1 and 3 have shown that such a simple system can even display Fraunhofer lines of the sun.

Module LO-2: Lasers with multi-beam delivery to fibers
The light sources for all experiments LO-X (except LO-1) and LM-X will be diode lasers. Both free-running and ECDL laser will be explored. Partner 1 works mainly with Cs, and Partner 2 with Rb, so that each of them will have their own laser sources. Partner 1 will mount a D1 and a D2 laser for Cs on a single board. In a first phase, free running lasers will be used, and in a later stage extended cavity feedback (ECDL) will be added. Each laser beam will be split by a beamsplitter on the board into 2 beams of equal intensity that will each be coupled into fiber coupling ports using FC connectors. In this way one will have two beams of each wavelength at disposal that can be carried to the respective demonstration modules by multimode (or single mode) fibers. For the magneto-optical demonstrations, for instance, one beam can go to the frequency stabilization module LO-4, while the other is used for the demonstration of the magneto-optical effect proper. System components (laser mounts and drivers, optics, fibers, optical mounts) from Thorlabs will be used by Partner 1, while Partner 2 will use a mix of commercial and home-built components.

Module LO-3: Doppler-free saturation spectroscopy
In saturation spectroscopy a strong light beam (pump beam) saturates an optical transition in a room temperature vapor, while a second much weaker beam (probe beam) derived from the same laser probes the effect of the pump beam. When the beams are counter-propagating narrow resonances of sub-Doppler width appear at the atomic resonance frequencies. When several spectral lines are overlapped inside of a single Doppler profile one observes additional (crossover) resonances at the average frequencies of pairs of individual resonances. Here we want to develop a lecture demonstration module of this effect for Cs (Partner 1) and Rb (Partner 2). The demonstration can be used to a) determine hyperfine coupling constants, b) to investigate the influence of the crossing angle between the beams, and c) to understand the appearance of crossover resonances. It also allows the determination of saturation parameters and the study of power broadening. Adding simple optical elements to the setup, such as a beam expander, it will be possible to study the influence of beam diameters on linewidths, i.e., transit time broadening. Laser beams from the laser boards (module LO-2) will be used.

Module LO-4: Laser frequency stabilization
Although the frequency of monochromatic laser radiation is concentrated in a narrow band of frequencies, the center of this band is not perfectly stable, showing noise and drifts. Many experiments in high resolution spectroscopy require the laser frequency to be fixed to a well defined value over long periods of time. This is achieved by the active stabilization (locking) of the frequency to a reference value provided by an atomic transition, a stable resonator or a second laser. Here we propose to demonstrate different techniques: 1) Locking to a Doppler-free hyperfine transition of the D1 or D2 line of Cs (Partner 1) or Rb (Partner 2) using saturation spectroscopy (module LO-3). This scheme involves frequency modulation and phase-sensitive demodulation as well as electronic feedback, b) Dichroic atomic vapor laser lock (DAVLL), a technique which requires no modulation, but rather uses the detection of circular dichroism in an atomic vapor produced by a magnetic field from permanent magnets (related to module MO-6), and c) frequency offset locking of an unstable laser to a stable laser with a tunable frequency difference (offset), a module which shows the students the concept of beat notes between optical fields and their use. Laser beams from the laser boards (module LO-2) will be used.

Module LO-5: Two-photon absorption
Atomic transitions in which two photons of equal wavelength are absorbed simultaneously from two counter-propagating (tunable) laser beams show a Doppler-free spectrum superposed on a Doppler-broadened pedestal. This absorption process is best detected by fluorescence at a different wavelength. Here we want to use a near infrared diode laser (778 nm) to drive the $5S_{1/2}$-$5D_{5/2}$ transition in Rb. Blue fluorescence will be used to monitor the two-photon absorption process. A suitable choice of laser polarization allows the complete elimination of the Doppler pedestal.

Laser spectroscopy: Resonant magneto-optical spectroscopy

Module LM-1a and LM-1b: Optical pumping
Optical pumping, introduced in the 1950s by Kastler and Brossel and later honoured by the Nobel Prize for Kastler is a technique by which angular momentum is transferred from a light beam to an ensemble of paramagnetic atoms by consecutive cycles of resonant absorption and emission. As a consequence the atomic medium becomes spin polarized, a property which opens possibilities for many applications, such as atomic clocks and magnetometers. Depending on the optical transition used, the spin-polarized medium absorbs either less light or more light than the unpolarized medium, a fact that can be exploited to monitor the optical pumping process and to infer the degree of achieved spin polarization. In modern terms, one refers to both cases as electromagnetically-induced transparency (EIT), and electromagnetically-induced absorption (EIA), respectively. For many decades optical pumping was achieved in alkali vapors using specific resonance lines of spectral discharge lamps. The advent of tunable low-cost diode lasers in the red and near-infrared spectral domains offers new possibilities that we exploit here for teaching purposes. The achieved degree of spin polarization and the pumping dynamics depend on spin relaxation in the vapour cells. In a vacuum cell spin coherence relaxes at a typical time scale of hundreds μs, due to wall collisions. Adding inert buffer gas at suitable pressures increases the relaxation times into the ms range, while protecting the cell walls with paraffin coatings yield relaxation times up to seconds. Here we produce a lecture demonstration experiment (module LM-1a) of the physics of optical pumping by laser diodes in Cs and/or Rb vapors. EIT and EIA shall be demonstrated by recording transmission and fluorescence. Longitudinal relaxation times will be measured and the difference of the pumping dynamics using different types of cells (vacuum, buffer gas, paraffin) shall be demonstrated. The dependence on the light polarization (circular vs linear) shall be explored. This module relies on the laser source module LO-2 and the frequency stabilization module LO-4 described above. Once the lecture demo has been realized, the module will be upgraded to become a student lab experiment (module LM-1b). For this module laser beams from the laser boards (module LO-2) will be used.

Module LM-2: Classical Hanle and resonant linear Faraday effect
In the 1920s Hanle observed that the resonance fluorescence of mercury vapour excited by circularly or linearly polarized resonance radiation is depolarized when a suitably oriented magnetic field is applied to the vapor. The effect is observed as a resonance in the magnetic field dependence of the polarization-analyzed fluorescence intensity when the magnetic field is scanned, the resonance occurring at zero magnetic field (level-crossing resonance). The resonance width depends on the product of the magnetic moment and the lifetime of the excited state and can be used to infer either of them when the other quantity is known. Here we want to realize a demonstration experiment of the classical Hanle effect in alkali vapors using resonant laser excitation. The effect of different buffer gases on the excited state lifetime will be one aspect of the demonstration. When the glass slab in Faraday's classical experiment is replaced by an alkali vapour and a resonant laser is used, one observes an increase of the Verdet constant by many orders of magnitude. Here we shall realize a demonstration of the resonant linear Faraday effect in Cs and/or Rb vapour. This module relies on the use of the laser module LO-2, on the laser stabilization module LO-4, and on the polarimetric technique developed in module MO-6.

Module LM-3: Ground state Hanle effect (GSHE) and nonlinear Faraday effect (NLFE)
When a spin polarized atomic sample prepared by optical pumping (LM-1) is exposed to a suitably oriented magnetic field the magnetization associated with the polarization will precess and relax. As a consequence, the optical properties (absorption coefficient, index of refraction) of the medium will become anisotropic and dependent on the strength of the magnetic field. These properties can be measured either by direct transmission recordings (ground state Hanle effect) or by polarimetric techniques (nonlinear Faraday effect). Set-ups for demonstrating both effects will be developed. As with the classical Hanle and Faraday effects the effects here manifest themselves via resonances when the relevant signals (fluorescence, transmission, polarimetric) are measured as a function of the applied field strength. Depending on whether the experiment is done under EIT or EIA conditions the resonances will be of opposite signs and one speaks of dark and bright resonances, respectively. A spectacular narrowing by 7 orders of magnitude in the resonance linewidths (compared to the linear signal) shall be demonstrated by using paraffin-coated cells. Partner 1 (coordinator) has a facility for producing paraffin-coated alkali vapour cells and has produced to date more than 300 good quality cells. This module relies on the use of the laser module LO-2, on the laser stabilization module LO-4, and on the polarimetric technique developed in module MO-6.

Module LM-4: Visualization of dark/bright resonances and light shift
Near resonant light driving an optical transition in a two-level atom broadens the levels and shifts their energies. The former effect has an absorptive dependence on the detuning from resonance, while the latter has a dispersive dependence, i.e., it vanishes when the light field is exactly resonant with the transition frequency. In lowest order both effects are proportional to the light intensity. If the light is circularly polarized the level shifts are proportional to the magnetic quantum number m, i.e., the light field acts as a virtual magnetic field. Although small, effects associated with light shifts have to be well controlled in high precision experiments. At the educational level we want to realize a module which allows the visualization of both bright and dark resonances as well as of the light shift using a variant of the GSHE/NLFE module (LM-3) and a low-cost webcam. This module relies on the use of the laser module LO-2 and on the laser stabilization module LO-4. This module inspired by a private discussion of Partner 1 with L. Moi of U Siena (Italy).

2.5 ***List how the individual tasks and responsibilities will be divided between the project partners.***

Table 1 gives an overview of the planed activities which are subdivided into different modules grouped under common headings. The durations are approximate estimations. In general the work of a given module will be carried out at the location of the partner marked as Responsible partner by team members of that partner. Collaborating partners will either contribute to the module during research visits at the responsible partner's institution or by manufacturing (electronic, optical, mechanical) components at their home institution that will then be integrated into the module.

LASER PHYSICS						
Label	**Module name**	**Respons. partner**	**Collab. partner**	**Type**	**Duration**	**Milestone**
LP-1	Nd-YAG laser	P2	P1	SL	10	module ready, manual written
LP-2	He-Ne laser	P1	P2, P3	LD	8	module ready
LP-3	Laser gyroscope	P1	P3	LD	14	module ready
MODERN OPTICS						
MO-1	Wave particle duality: double slit	P1	P3	LD	5	portable stand-alone demo module
MO-2	Wave particle duality of light: QE	P1	P3	LD	4	portable stand-alone demo module
MO-3	Optical tweezers	P2	P1,P3	LD	24	module ready
MO-4	Interferometers	P3	P1	LD, SL	18	module ready, manual written
MO-5	Polarized light	P3	P1	SL	20	module ready, manual written
MO-6	Linear magneto-optics	P3	P1	LD	15	module ready
MO-7	Holography	P2	P3	LD, SL	12	module ready, manual written
MO-8	Fiber optics	P3	P1, P2	LD	6	module ready
LASER SPECTROSCOPY: OPTICAL SPECTROSCOPY						
LO-1	USB-spectrometer	P3	P1	LD	7	module ready
LO-2	Multi-beam delivery to fibers	P2	P1	SL	18	module ready
LO-3	Saturation spectroscopy	P2	P1	LD,SL	7	module ready. manual written
LO-4	Laser frequency stabilization	P2	P1	LD,SL	9	module ready. manual written
LO-5	Two-photon absorption	P1	P2	LD	5	module ready
LASER SPECTROSCOPY: MAGNETO-OPTICAL SPECTROSCOPY						
LM-1a	Optical pumping (LD)	P1	P2, P3	LD	14	module ready
LM-1b	Optical pumping (SL)	P1	-	SL	14	module ready, manual written
LM-2	Hanle and Faraday effect	P1	P2, P3	LD	9	module ready
LM-3	Linear/nonlinear Faraday effect	P1	P2, P3	LD	13	module ready
LM-4	Visualization of light shift	P1	P2	LD	9	module ready

Statistics	P1	P2	P3
LEAD	10	6	5
collab	10	7	9

Type: LD=lecture demonstration
SL=student lab experiment

Table 1: *Lecture demonstration (LD) and student laboratory (SL) experiments that will be realized in the present proposal.*

Table 2 shows our current planning of the time evolution of the project in form of a Gantt chart. This is a preliminary planning, in particular for the coordinator (Partner 1) who has to rely on Bachelor and Master students for realizing the modules for which he signs responsible. The availability of such student manpower cannot be planed ahead over a three-year period. The exact duration of the tasks is difficult to judge, and the Gantt chart should be seen as an indication whether tasks will be attacked in the beginning, the middle, or towards the end of the project.

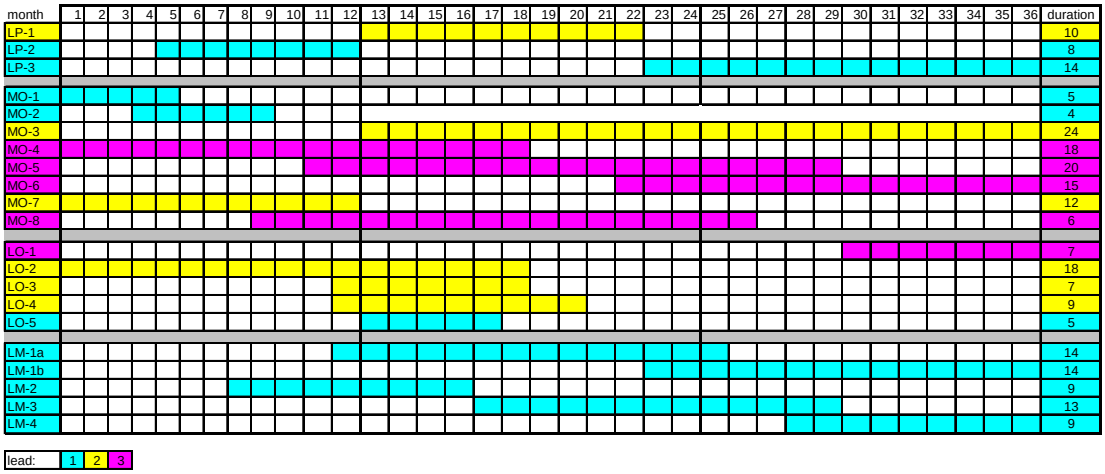

Table 2: *Gantt chart: representing the timelines for the realization of the different modules.*

In the following we give details on the teams and on budget issues, according to partners.

Team of Partner 1 (Fribourg)

The project leader, Prof. Antoine Weis will be personally involved in the development of the demonstration modules. He will be supported in this by Bachelor and Master students. He will have further support from Hugues Vuillème, responsible for lecture demonstrations and technical responsible for the beginners' student laboratories at the Physics Department of U Fribourg. Further support will be obtained from the local mechanical and electronics workshops, organized as pools working for all experimental groups in the department. Mrs. Nadia Chappuis-Pury, secretary, will assist in all administrative and accounting tasks.

Budget details of Partner 1:
The budget of Partner 1 (coordinator) foresees 1-2 visits/year of the institutions of the other two partners, totalling 13'500 CHF. 10'000 CHF/year are foreseen to buy the necessary small components (consumables) for realizing the experiments.

Team of Partner 2 (Belgrade)

Prof. Dr. Branislav Jelenkovic is the project leader of the Belgrade team. The following persons will collaborate on the project and receive individual grants:

Name	sex	born	Position	involvment (%)	monthly grant (CHF)	grant duration (months)	total grant
Brana Jelenkovic	m		team leader	30	150	36	5400
Dejan Pantelic	m		senior scientist	30	120	36	4320
Darko Vailjevic	m		senior scientist	30	120	36	4320
Aleksandar Krmpot	m		Ph.D. student	30	90	36	3240
Zoran Grujic	m		Ph.D. student	30	90	36	3240
Senka Cuk	f		Ph.D. student	30	90	36	3240
Marina Mijailovic	f		Ph.D. student	30	90	36	3240
						TOTAL	**27'000**

Dejan Pantelic (born 1957) is a well known expert on holography and its applications in dentistry and medicine. He has a large experience of building different types of lasers (both cw and pulsed) throughout his carrier.

Darko Vasiljevic (born 1960) works in holography, and on imaging of different level signals using CCD. Has good experience with pulsed lasers and their applications for LIDARs. He has experience with optical fibers as pressure and temperature sensors.

Aleksandar Krmpot (born 1976) works as a PhD student on Hanle Electromagnetically Induced Transparency (EIT). He has good experience in extended cavity laser frequency stabilization using saturation spectroscopy. He has a wide knowledge on both the classical and the non-classical Hanle effects. He helped building a Nd:YAG laser, whose stabilized second harmonic was used as a length standard at the Serbian National Metrology Institute.

Zoran Grujic (born 1976) works as a PhD student on narrowing EIT in room temperature Rb vapor using the Ramsey technique of separated laser beams. He has built several extended cavity diode lasers as a graduate student using different configurations for the extended cavity. He locks lasers in his experiments using the DAVLL technique. .

Marina Mijailovic (born 1978) works as a PhD student on nonlinear Faraday rotation using a pair of Raman lasers and Ramsey effects to narrow the resonances. This includes both spatially and temporarily separated beams.

Senka Cuk (born 1982 works as a PhD student on problems related to Electromagnetically Induced Absorption (EIA) in buffered Rb vapor cells. She is also helping to set up a 2-D MOT as a beam source of cold Rb atoms for measuring effects of separated beams of slow atoms on the EIT resonances.

Budget details of Partner 2:

Equipment: Laser diodes and controllers for Rb light at 780 and 794 nm and for laser diodes 408 nm for holography. Array of laser diodes and their power supplies for pumping Nd:YAG crystal. Acusto-optic modulators, power supplies, signal generators, computers.

Consumables: Non-linear crystals, optical elements (retardation plates, mirrors, lenses), mirror and lens mounts, polarizing and non-polarizing beam splitters, single and multy mode fibers and fiber couplers, piezo disks, precision translation stages, small electronics, and optical breadboards.

Travel**:** Visits to Partner 1 and Partner 2 two times every year. Visits include visit by the team leader to attend the meeting of the Project board; visits by team members working on different modules in cooperation with other partner(s) and by a team member who needs to help develop copy of module at the partner's location.

Indirect cost: This will be used to pay overhead charges to U Belgrade.

Team of Partner 3 (Plovdiv)

The team leader is Senior Assistant Dr. Todorka Dimitrova. She will participate in all experiments where Partner 3 is included.
The following persons will collaborate on the project and receive individual grants:

Name	sex	born	Position	involvment (%)	monthly grant (CHF)	grant duration (months)	total grant
Todorka Dimitrova	f	1966	team leader	66.7	333	36	12000
Tinko Eftimov	m	1955	senior scientist	40	160	36	5760
Tsvetana Grigorova-Shtarbe	f	1968	senior scientist	25	100	36	3600
Georgi Ivanov	m	1956	specialized staff	25	50	36	1800
Anton Lechkov	m	1958	engineer	25	50	36	1800
						TOTAL	**24'960**

The Bulgarian team is composed of scientists working in different fields of science, but having common interests and started collaboration in some fields covered by this proposal.

Docent Tinko Eftimov will participate mainly in the experiments related to fiber optics and polarized light. He has experience in optical fiber polarimetry, polarization-sensitive intermodal interference in optical fibers, fiber gratings, and optical fibre sensors.

Docent Dr. Tsvetana Grigorova-Shtarbeva will participate mainly in the realization of electronics components. She is an expert in the field of electronics converters for supply voltages with controlled output characteristics, development of the multifunctional converter as a base modules for education and investigations in the field of the electric power conversion, investigation and research of power electronics converters with improved performances.

Anton Lechkov is an electronic engineer with good experience in building electronics. He will work on the building of the needed electronics.

Georgi Ivanov is a demonstrator of physics lectures who collaborates with Partner 3 and T. Eftimov in the development of demonstration experiments in optics. He will work in the mechanical workshop and will be trained to perform the demonstration experiments during lectures.

We will also include several 2nd and 3rd year students (half of them female) in the projects.

Budget details of Partner 3:

The budget of Partner 3 foresees four 1-month visits at the institute of the coordinator and several 1-2 week visits to the institute of partner 2, totalling 24’800 CHF. A total of 12’000 CHF are foreseen for purchase of basic equipment (oscilloscope, function generator, electronics, etc) and 12’000 are foreseen to buy the necessary small optical and mechanical components for realizing the experiments.

3. Transition relevance of the planned research (max. 10 pages)

3.1 Significance of the planned research for the economic and/or societal development of the partner country.

Partner1, coordinator (U Fribourg)

Switzerland, like most countries, has experienced a significant drop in physics students in the past decade. While research and teaching infrastructures in Switzerland are still at a worldwide top-class level, there is a continuous need to adapt the teaching in advanced classes to reflect the state of the art in research and to bring emerging new domains of research, experimental techniques, and new insights into the teaching environment. This aspect concerns mainly advanced student laboratory experiments that the physics students in Fribourg carry out during their Bachelor and Master studies. The physics teaching curriculum at the Physics Department offers students the possibility to actively participate in ongoing research projects from their final Bachelor's year (third year of studies) on. Nevertheless the advanced labs have an importance of their own, and require a certain degree of modernization regarding the park of available experiments. Partner 1 (coordinator) has often experienced that the most talented students feel a strong attraction by theoretical physics. When asked for the motivations of their choice such student often advance that, besides the beauty of theoretical physics, they were particularly disappointed by the quality and topics of the student laboratories and their usefulness for their general education. The early integration of students into the research groups is certainly a good remedy for illustrating that modern experimental physics is quite different from experiments in (often old-fashioned) student labs. However, the supervision of a BSc student is a time consuming effort, which has to be complemented by advanced student laboratories with modern equipment. There are 3 main experimental research directions at the Fribourg Physics Department (solid state physics, soft condensed matter physics and atomic physics, both X-ray and high resolution laser spectroscopy), and there is a wish to represent these specific topics in the advanced student labs, so that the students can familiarize themselves with some of the basic experimental techniques in those fields. This will ease their choice of a specific research group for their experimental Master thesis work (duration of 6-9 month).

In the past years the total number of first year students at the Science Faculty in Fribourg has experienced a strong increase from less than 100 five years ago to 220 in this year, among which are 5-10 students enrolled in a full physics curriculum. This increase is due in large parts to the installation of novel directions of study, such as Biomedical Sciences and Sports. While the introductory physics lectures (Partner 1 has been teaching both Physics I and Physics II courses since he arrived to Fribourg in 2000) can cope with this increase, the accompanying exercise classes and beginners student labs cannot. Here too a quick remedy is needed, e.g., by duplicating existing and creating new student lab experiments. Several aspects of the present project will be very helpful in this respect.

Partner 2 (U Belgrade)

Discoveries and development in natural and technical sciences serve as foundations of contemporary technology. Yesterday's discoveries are today's technological pillars and today's discoveries are tomorrow's technological pillars. Natural and technical sciences are a great deal experimental – equipment is necessary to investigate the phenomena in those areas.

Without researchers – the subjects of scientific investigation – the probability of a discovery decreases. Forming a quality researcher is a key issue in opening the door to success in future technologies. Without scientific equipment, education is reduced to theoretical explanations and the knowledge acceptance depends largely on the imagination capabilities of the students. Students less talented in imaginative thinking, but more talented in other areas, would be in this case disfavoured and discouraged in continuing their education and would be probably lost for tomorrow's technology. This is in discordance with the strategy of developing a science-based society.

The educational situation in many countries of Eastern Europe is not inclined to promote the natural and technical sciences. Aging of the educational equipment is one of the key issues for distracting the students from continuing their career in scientific research. They not only turn away from research, but from natural and technical sciences in general.

Use of proper equipment will enable the students the gain insight into phenomena which have been at the core of many crucial discoveries that have led to contemporary technology. More importantly, recent scientific discoveries - believed to be prospective - still wait for their turn to be implemented into modern technology and industrial manufacture. Experiments covering the phenomena behind these discoveries, carefully selected and presented to students would be promising from the educational point of view. Being directly involved in modern experiments dealing with phenomena which lie behind the recent discoveries, students might become more interested in continuing the education. This might attract more students to natural and technical sciences. The role of those experiments would be twofold: as educational tools as well as research tools. In this way, the students will be presented with recently revealed phenomena and will also perform research through these experiments.

Holography, as an example, is omnipresent in everyday life, even in developing countries like Serbia. However, its potential is not very well understood by the general public and, often even not by scientists and persons with a technical education. It is important to teach students the practicalities of holography in order to show them all techniques and know-how needed to produce holograms and use holographic techniques. By that means we will educate future specialists able to use holography in proper and creative ways.

Partner 3 (U Plovdiv)

The political and economical transition in Bulgaria has had a strong negative impact on science and education. The lack of funds for research and teaching equipment has decreased the level of education in natural sciences and in particular in physics. The crash of large factories and privatization has led to a strong increase of the unemployed rate, in particular for academics with an engineering or natural science degree. The booming of small start-up trading companies has directed many students towards studies in social sciences, in particular economy and law. As a consequence the number of physics students has strongly dropped. The brain-drain of well-trained specialist to jobs abroad has even worsened the situation.

Today, as the economical situation is improving, there are not enough well-trained specialists to meet the needs of the growing industry. Although the Faculty of Physics of U Plovdiv makes large efforts to adapt its educational plans by involving more and more modern and practical disciplines, a satisfying level of the education cannot be achieved without modern laboratory equipment. Moreover, it is difficult for scientists to do their job with the very limited and very old equipment. It is impossible to trigger any enthusiasm for modern technology with the students when the equipment used for his training is 30 or more years old. It very often happens that a student is not able to end a laboratory experiment, just because a (minor) component of the equipment breaks and that there are no funds to replace it. To this adds the fact that U Plovdiv has a few only research laboratories, so that we are not able to offer to our students the necessary number of research topics for their diploma thesis and many of them perform their diploma work doing literature research mainly using the internet, because the available books are also quite old editions. Real research can only be performed when funds from international collaborations become available. As a result, the teaching is mainly theoretical and the practical work is at a quite low level. The students can thus not obtain satisfactory practical abilities during their studies and they are not prepared to adapt to a job that corresponds to their degree.

The research of the present proposal is closely related to the above described context. Modern optics and spectroscopy are important parts of science with many applications in different fields of physics, biology, astronomy, modern technology and everyday life. The interest of young students for physics is not only driven by natural curiosity, but much more by the actual modern context of their research subject and the possibility to perform hands-on modern experiments.

The Bulgarian team has some expertise in modern optics and spectroscopy and is strongly motivated to enlarge the research in this field in collaboration with the other partners. There is already a very fruitful collaboration with the Fribourg team (Partner 1), that was strengthened in the past years through several mutual exchange visits. We wish to extend and involve more people into that collaboration. Moreover, we appreciate the very high level of professional support and excellent working conditions offered by Partner1. Partner 3 has visited the laboratory of the Belgrade team during a conference in 2008 and finds their ideas for common projects very attractive. We will highly appreciate the opportunity to have some financial support for developing and building some new demonstration and laboratory experiments and mainly to establish suitable experiments which will form the basis for initiating new research work in Plovdiv, the starting point for future joint scientific projects. We are convinced that the results of the project will contribute strongly to improve the professional abilities to the participants, thereby improving the teaching level and increasing the Bulgarian students' attraction to physics.

3.2 Planned actions to strengthen individual (and institutional) research capacities in the partner country (especially the involvement of young researchers and women).

Partner1, coordinator (U Fribourg)

Ever since his first visit of an Eastern European research institution in the pre-transition time and during many visits in the post-communism time, A. Weis (Partner 1, coordinator) has felt a strong commitment to support Eastern European scientists. In consequence he has set-up, and successfully coordinated in the past 2 INTAS and 1 SCOPES project. He has invited on many occasions Eastern European scientists for 1-2 month research stays at his home institutions (Garching, Bonn, Fribourg) totalling salary payments of several person-years. A. Weis has contributed on several occasions to Programme and Award Committees at Conferences and Schools held in Eastern Europe, and has been invited key note lecturer at several Schools/Conferences for Young Scientist in Russia and Bulgaria.

Many of the subtasks of the present project were brought forward by the coordinator who has cherished the idea of their realization for many years, but could not do so because of lack of manpower (it is well known that Eastern European countries face the opposite problem of having sufficient manpower, but no funds). The present project will allow the coordinator to partly fulfil those dreams. Besides the obvious advantage for the students the project will permit the Eastern partners to modernize their teaching equipment park.

U Fribourg has a relatively small number of students in physics, of which the female students represent approximetaly 20%. Since a few years there is a local effort called WINS (Women in Science) organized on a yearly basis in which female (only) high school student are invited to spend 2 days in a department of their choice. We have experienced that young women feel attracted by optics experiments (we have them work on a precursor of the He-Ne laser module LP-2). Offering them a larger choice of basic optics experiments is likely to increase their interest for physical sciences.

The project at U Fribourg will be carried out mainly by the coordinator personally (who has installed a few years ago his personal “toy” laboratory for purposes similar than the one pursued here), in collaboration with Bachelor and Master students and visiting members of the partner teams. The other (academic) research collaborators of the coordinator will only be involved marginally in the planed projects.

Partner 2 (U Belgrade)

This proposed project will help to establish the Center for Photonics at the Institute of Physics of U Belgrade as a well equipped and trained place for student education in optics and photonics. Students from U Belgrade, primarily from the Physics Faculty and the Electrical Engineering Faculty will profit from the best available, instructive, interesting to follow demonstrations, demonstration tools, and understanding various optics phenomena through visualization. The Photonics Centre where the work will be carried out has a god gender balance, seven out of a total of 21 members are women. Graduate students account for nearly half of the members (9) of the Center. A minimum of three diploma students will be active on setting up the modules.

This project is intended for young people willing to learn the basics of optics, which most likely will be the field in which they will pursue their university or industrial career. It is therefore imperative to include young researchers into the development process, since they will know best what is needed to efficiently explain the potentials and key features of many different phenomena and principles demonstrated with developed modules. Out of the six members of the Center which will take active part in the proposal, four are graduate students. There are two female graduate students participating in the proposed project.

The wider enviroment where this research and development will be done is the Institute of Physics, one of the Serbia'a most prestigous research and educational institutions. Of all members (143) young researchers and reaserch professors (72), born after 1970., represent 50%. Women represent 38% of all members of the Institute of Physics. It is interesting to note that currently more women than men hold associate research professor positions. The best way to demonstrate that the Institute of Physics is an equal opportunity employer is to analyze the number of Ph.D. students. Of a total of 37 Ph.D. students 18, i.e., 49% are female Ph.D. students.

A connection between several faculties (physics, electrical engineering) of U Belgrade will be established, and the Institute of Physics will serve as an experimental training base for optics related courses. A website dedicated to the newly developed Optics Laboratory (result of the proposed project), with descriptions of all available lectures and demonstrations, and with detailed description of the modules, will be launched both in Serbian and English. It will serve as a tool to communicate laser related news, exchange opinions, a guide through experiments, JAVA simulations of setting-up optics experiments.

Partner 3 (U Plovdiv

Physics is a difficult and time consuming science which needs dedication, continuous efforts and deep concentration. Bulgarian women have many more social and family duties than men, so that mainly men are involved in science. Moreover, modern Bulgarian women are very active and enduring, being able to coordinate and manage scientific, social and family duties. Still, the participation of women in research is not very well accepted – when offering a position men are often given an (illegal) preference. The average age of faculty staff in physics at U Plovdiv is 59 years, implying that the older generation rules – often emphasizing mentality, teaching techniques and research aspects of their generation. Most of the elder scientists speak only their native language or some Russian. Their use of computers is limited to text editors, internet browsers and e-mail programs. As a result they often have no up-to-date information on the state of the art of world science. Another, related problem, is the fact that they will soon retire, and that there is not a sufficient number of prepared young people to take over. The extremely low salaries are not the only reason why many scientists do not want to stay and work in academia. Many would accept the salary conditions, if only the university would offer good conditions for their professional self-realization in research. For example, in the past 10 years the Physics Faculty of U Plovdiv has delivered only a single Ph. D. degree. Several persons arrived to their Ph.D. defence after 10-15 years of work – time during which the subject of their thesis was no longer an actual topic in science, thereby lacking any practical utility.

To attract and keep the people in the Faculty of Physics, it is absolutely necessary to have modern laboratory equipment which shows to the students the actual state of science and allows them to obtain useful practical skills. The same holds for lecturers and researchers. Both need modern equipment and funding to do real research, not to speak of funds for travel and scientific exchange. In general participation at a conference (even national) has to be paid from the participant's salary. It often happens that a scientist invests private money to buy components needed for experiments or to start a project. Science is not yet very popular in Bulgaria and Bulgarian economy is not eager to invest into science.

The joint project will constitute a significant contribution for (partially) solving the above-mentioned problems by involving young people and women. The new equipment provided in the proposal to be built will be valuable both for teaching and research. The collaboration with the Swiss partner will increase significantly the research level. It will have a positive influence on teaching, both at U Plovdiv and U Fribourg via exchange of expertise and new demonstration and laboratory devices. The collaboration with the Serbian partner will also contribute positively. The Serbian offer experiments in holography and laser spectroscopy, topics for which U Plovdiv is not well equipped. Partner 3 is interested to acquire practical skills in holography and exchange experience in laser spectroscopy. The close proximity of Bulgaria and Serbia will be useful not only from a geographical point of view, but also because of the closely connected cultures of both countries, which will improve the (friendly) relations between them.

3.3 Strategy to communicate with intended result users.

Of course we plan to present our results at conferences and in specific scientific journals, like the American Journal of Physics or the Review of Scientific Instruments. Whenever possible, portable modules will be taken to conferences where they will be shown during poster sessions. In this way a larger set of scientists may profit from our developments, in case they want to undertake similar efforts at their institutions.

This project differs from usual research projects in the sense that the main community of users that will benefit from the achieved results are our current and our future students. The teaching modules developed here will be used (and improved, when necessary) for many years as lecture demonstrations and in student laboratories. In this sense, an important medium for communicating obtained results will be detailed instruction manuals for laboratory experiments. By experience we know that the writing of a good instruction manual implies a lot of work. Most of the modules will be equally well suited for lecture demonstrations and for student laboratories. The duration of the project will not allow us to turn each of the demonstration experiments into a full student lab experiment. This will only be possible for a small subset of the modules. At this point we are not able to specify which modules will be really suitable for this extension. Only time and the gained experience will allow us to decide on this issue. An important, at least local, way of communication is direct propaganda between students. Modern experiments in student labs are usually very coveted.

Besides the students, the main sub-community of users will be the partners of the present proposal. In particular the EE partners may be able to integrate (some of) the modules developed here for teaching purposes – after suitable extensions – for doing "real" research at their home institutions. In this sense the modules will form the basis for longer term research opportunities at the involved EE institutions. This will also lay the foundation for future research in collaboration with the coordinator.

Specific for Partner 2 (Belgrade): A connection between several faculties (Physics Faculty, Electrical Engineering Faculty) at U Belgrade will be established, and the Institute of Physics will serve as a experimental training base for laser related courses. Gifted high school pupils will be included in the process of laser education through the Petnica Science Center which is well known in Serbia. We are confident that this kind of laser education will significantly boost the level of practical knowledge in this ever expanding area.

4. Management structure

Describe the management scheme for the project and point out the collaboration between the research teams.

An efficient management scheme is crucial for the success of this complex multi-task project. The coordinator (Partner 1) at U Fribourg will assume the management of the project's scientific, administrative, financial, and logistic aspects. The coordinator will also assure the distribution of financial support from SNF to the partners, and submit the scientific and financial reports according to the deadlines set by the SNF.

In the first month following the reception of the grant we will organize a kick-off meeting at the Institute of Physics of U Belgrade (Partner 2) following a preparatory phase of the meeting by e-mail exchange. We foresee one common meeting of the team leaders (Project Board) each year, prior to the period of report submission. The three foreseen meetings will be held at U Fribourg, U Belgrade and U Plovdiv, in an order to be discussed. The meetings shall typically last 2 days, the first day being devoted to mutual reporting and evaluation of the achievements, and the second day to planning future activities. Solutions to technical difficulties, if any, and suggestions for improvements of results, if necessary, will be on the meeting agenda. Moreover we will plan during those meetings the attendance of conferences of common interest at which results of the project will be presented.

Internal progress reports shall be prepared by each team on a 6 month basis. The coordinator will distribute these reports in form of a unique document to all partners.

The last meeting of the Project board will be held three months before the end of the project. All results obtained during the duration of the project will be reviewed and the level of success of each constructed modules will be documented. Specific PowerPoint slides (in English) will be prepared for each module and distributed among the partners. Specific instruction manuals for terminated student laboratory experiments will be prepared in English and critically evaluated. They will later be translated into local languages (German, French, Serbian, Bulgarian) according to local needs. Suggestions, if necessary, will be elaborated for improvements of the performance of some modules and for better clarity of the scripts in the remaining period of the project.

While most of the work will be performed by local staff at their home location we envision having a maximal amount of mutual exchange research stays during which members of the different partner institution can perform common work. Typically, work during such visits will be in relation to a module built by Partner X (task leader) at his home institution of which Partner Y wants a copy after completion. Partner Y will be committed to send a member of his team to collaborate at the institution of Partner X on the development work of that module in the final phase. In this way an efficient transfer of know-how to the receiving Partner Y will be assured.

Table 1 shown above illustrates the lead of each project and the collaborating partners, the latter meaning that members of the collaborating team will spend sufficient time at the leading partner's institution to carry out the work.

Prepared by Antoine Weis (coordinator) in collaboration with the team leaders from Partners 2 and 3.

Fribourg, 14. April 2009

УНИВЕРЗИТЕТ У БЕОГРАДУ
Институт за физику

Конференција

Девета радионица фотонике (2016)

Зборник апстраката

9th Photonics Workshop
Book of Abstracts

Kopaonik, March 2–6, 2016

Копаоник, 2–6.3.2016.

Програмски одбор:

др Бранислав Јеленковић, научни саветник Института за физику (председник)

др Дејан Пантелић, научни саветник Института за физику

др Љупчо Хаџиевски, научни саветник Института за нуклеарне науке „Винча“

др Павле Анђус, редовни професор Биолошког факултета

др Радош Гајић, научни саветник Института за физику

др Александер Ковачевић, виши научни сарадник Института за физику

др Александар Крмпот, научни сарадник Института за физику

Организациони одбор:

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др Драган Лукић, виши научни сарадник Института за физику

др Александар Крмпот, научни сарадник Института за физику

др Дарко Васиљевић, виши научни сарадник Института за физику

др Бранислав Јеленковић, научни саветник Института за физику

Спонзори Конференције:

Министарство просвете, науке и технолошког развоја Републике Србије

Оптичко друштво Србије

„Сензор инфиз“ д.о.о.

„Оптикс“ (“Optix”) д.о.о.

Универзитет у Београду
Институт за физику

Конференција

Фотоника 2010

теорија и експеримент у Србији

Зборник апстраката

Београд, 21.–23. април 2010.

Теме

(1) Оптика: линеарна, нелинеарна, кохерентна, физичка и др.
(2) Савремени материјали у фотоници и њихове особине: метаматеријали, фотонски (фотонички) кристали, оптичка влакна и решетке
(3) Квантна и атомска оптика
(4) Оптоелектроника и оптичке комуникације, оптички извори, детектори и сродни уређаји
(5) Био-физика и медицинска оптика
(6) Холографија, интерферометрија, томографија
(7) Ласери и ласерска интеракција са материјалима (укључујући атмосферу)
(8) Оптичка метрологија
(9) Нанофотоника

Програмски одбор

Бранислав Јеленковић, Институт за физику (Београд)
Љупчо Хаџиевски, Институт за нуклеарне науке „Винча“ (Београд)
Милош Живанов, Факултет техничких наука (Нови Сад)
Јелена Радовановић, Електротехнички факултет (Београд)
Милорад Кураица, Физички факултет (Београд)
Радош Гајић, Институт за физику (Београд)
Зорана Дохчевић-Митровић, Институт за физику (Београд)
Александра Малуцков, Природно-математички факултет (Ниш)
Дарко Васиљевић, Институт за физику (Београд)
Александер Ковачевић, Институт за физику (Београд)

Организациони одбор

Дарко Васиљевић, Институт за физику (Београд)
Александер Ковачевић, Институт за физику (Београд)
Зоран Грујић, Институт за физику (Београд)
Марина Мијаиловић, Институт за физику (Београд)
Зоран Мијић, Институт за физику (Београд)
Сенка Ћук, Институт за физику (Београд)
Мирослав Поповић, Институт за физику (Београд)

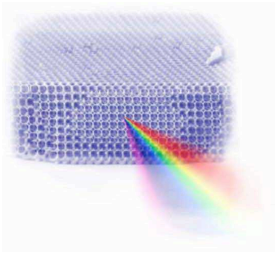
Захвалнице

Одржавање Конференције су финансијски и организационо помогли:

Министарство за науку и технолошки развој Републике Србије
Институт за физику (Београд) - Центар за фотонику, пројекат МНТР 141003
„Optix“ д.о.о
С.з.т.р. „МЕ-ОРТА“

Садржај

UNIVERZITET U BEOGRADU
Institut za fiziku



Konferencija

Osma radionica fotonike (2015)

Zbornik apstrakata

PHOTONICS CENTER

Kopaonik, 8–12.3.2015.

Programski i organizacioni odbor:

dr Darko Vasiljević, viši naučni saradnik Instituta za fiziku (predsednik Odbora)

dr Aleksandar Krmpot, naučni saradnik Instituta za fiziku

dr Aleksander Kovačević, naučni saradnik Instituta za fiziku (urednik Sajta)

dr Dragan Lukić, viši naučni saradnik Instituta za fiziku (urednik Zbornika)

Akademik dr Branislav Jelenković, naučni savetnik Instituta za fiziku

Sponzori Konferencije:

Ministarstvo prosvete, nauke i tehnološkog razvoja

Optičko društvo Srbije

„Senzor Infiz“ d.o.o

„Optix LVA“ d.o.o

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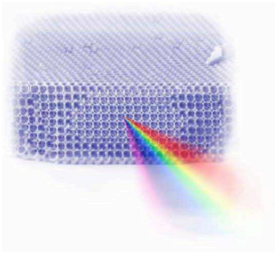

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POTVRDA

Ovim se potvrđuje da je dr Darko Vasiljević bio rukovodilac projektnog zadataka "Ispitivanje optičkih osobina rastegljivih sočiva" u okviru podprojekta "Holografski generisane fotonične i biomimetičke nano strukture" na projektu "Generisanje i karakterizacija nano-fotonskih funkcionalnih struktura u biomedicini i informatici", evidencioni broj projekta III45016 koji je finansira Ministarstvo prosvete nauke i tehnološkog razvoja.

U Beogradu 26. 10. 2017.

Dr Branislav Jelenković
Naučni savetnik Instituta za fiziku u Beogradu
i rukovodilac projekta III 45016

Table 1

	This is a citation overview for a set of 24 documents.																							
	h-index = 6 (Of the 24 documents considered for the h-index, 6 have been cited at least 6 times.)																							
	Scopus is in progress of updating pre-1996 cited references going back to 1970. The h-index might increase over time.																							
								<2005	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	subtotal	>2017	total
Publication Year	Document Title	Authors	ISSN	Journal Title	Volume	Issue	0	1	1	4	5	16	5	7	11	8	11	4	16	5	94	0	94
2016	Minimum resolvable temperature difference model, simulation, measurement and analysis	Knezevic D., Redjimi A., Miskovic K., Vasiljevic D., Nikolic Z., Babic J.	3068919	Optical and Quantum Electronics	48	6	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1
2016	Application of tot'hema eosin sensitized gelatin as a potential eye protection filter against direct laser radiation	Muric B.D., Pantelic D.V., Vasiljevic D.M., Savic-Sevic S.N., Jelenkovic B.M.	15671739	Current Applied Physics	16	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	2
2016	Optical analysis and performance evaluation of a solar parabolic dish concentrator	Pavlovic S.R., Vasiljevic D.M., Stefanovic V.P., Stamenkovic Z.M., Bellos E.A.	3549836	Thermal Science	20		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2015	Optical model and numerical simulation of the new offset type parabolic concentrator with two types of solar receivers	Pavlovic S., Vasiljevic D., Stefanovic V., Stamenkovic Z., Ayed S.	3542025	Facta Universitatis, Series: Mechanical Engineering	13	2	0	0	0	0	0	0	0	0	0	0	0	4	0	4	0	4
2014	Single-beam, dual-view digital holographic interferometry for biomechanical strain measurements of biological objects	Pantelic D.V., Grujic D.Z., Vasiljevic D.M.	10833668	Journal of Biomedical Optics	19	12	0	0	0	0	0	0	0	0	0	0	1	2	0	3	0	3
2014	Optimization of the double-Gauss objective with the various evolution strategies and the damped least squares	Bakic S., Vasiljevic D.	2811847	Physica Scripta	T162		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2013	Biomechanical model produced from light-activated dental composite resins: A holographic analysis	Pantelic D., Vasiljevic D., Blazic L., Savic-Sevic S., Muric B., Nikolic M.	2811847	Physica Scripta	T157		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2013	Sensitized gelatin as a versatile biomaterial with tailored mechanical and optical properties	Muric B., Pantelic D., Vasiljevic D., Zarkov B., Jelenkovic B., Pantovic S., Rosic M.	2811847	Physica Scripta	T157		0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1
2012	Influence of cavity design preparation on stress values in maxillary premolar: A finite element analysis	Kantardzic I., Vasiljevic D., Blazic L., Luzanin O.	3539504	Croatian Medical Journal	53	6	0	0	0	0	0	0	0	0	1	0	3	0	0	2	6	0	6
2012	Influence of TESG layer viscoelasticity on the imaging properties of microlenses	Vasiljevic D., Muric B., Pantelic D., Panic B.	318949	Physica Scripta		149	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2011	Optimization of the Petzval objective with the various evolution strategies and the damped least squares	Vasiljevic D., Ilic S.	0277786X	Proceedings of SPIE - The International Society for Optical Engineering	7747		0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1
2010	Protective effect of autophagy in laser-induced glioma cell death in vitro	Krmpot A.J., Janjetovic K.D., Misirkic M.S., Vucicevic L.M., Pantelic D.V., Vasiljevic D.M., Popadic D.M., Jelenkovic B.M., Trajkovic V.S.	1968092	Lasers in Surgery and Medicine	42	4	0	0	0	0	0	0	0	2	0	0	1	1	3	0	7	0	7
2009	Influence of chemical processing on the imaging properties of microlenses	Vasiljevic D., Muric B., Pantelic D., Panic B.	2811847	Physica Scripta T	T135		0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1
2009	Aberrations of betanin sensitized gelatin microlenses	Vasiljevic D., Muric B., Pantelic D., Panic B.	5874246	Acta Physica Polonica A	116	4	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	1
2009	Holographic measurement of a tooth model and dental composite contraction	Pantelic D., Savic-Sevic S., Vasiljevic D., Muric B., Blazic L., Nikolic M., Panic B.	10426914	Materials and Manufacturing Processes	24	10-11	0	0	0	0	0	0	1	0	0	0	2	0	0	0	3	0	3
2009	Thermal analysis of microlens formation on a sensitized gelatin layer	Muric B., Pantelic D., Vasiljevic D., Panic B., Jelenkovic B.	1559128X	Applied Optics	48	19	0	0	0	0	0	1	0	0	1	2	0	0	1	0	5	0	5
2008	Microlens fabrication on tot'hema sensitized gelatin	Muric B., Pantelic D., Vasiljevic D., Panic B.	9253467	Optical Materials	30	7	0	0	0	0	0	3	0	0	2	2	0	0	1	0	8	0	8
2007	Properties of microlenses produced on a layer of tot'hema and eosin sensitized gelatin	Muric B.D., Pantelic D.V., Vasiljevic D.M., Panic B.M.	1559128X	Applied Optics	46	35	0	0	0	0	0	3	0	0	2	2	1	1	1	0	10	0	10
2007	Imaging properties of laser-produced parabolic profile microlenses	Vasiljevic D., Muric B., Pantelic D., Panic B.	5874246	Acta Physica Polonica A	112	5	0	0	0	0	0	3	0	0	1	0	0	0	0	0	4	0	4
2007	Holographic measurement of dental tissue contraction and stress, due to postpolymerization reaction	Pantelic D., Blazic L., Savic-Sevic S., Muric B., Vasiljevic D., Panic B., Belic I.	5874246	Acta Physica Polonica A	112	5	0	0	0	0	0	0	1	2	0	0	0	0	0	0	3	0	3
2007	Real-time measurement of internal stress of dental tissue using holography	Pantelic D., Blazic L., Savic-Sevic S., Muric B., Vasiljevic D., Panic B., Belic I.	10944087	Optics Express	15	11	0	0	0	1	0	1	1	0	1	0	1	0	2	0	7	0	7
2007	Imaging properties of laser-produced Gaussian profile microlenses	Vasiljevic D., Pantelic D., Muric B.	0277786X	Proceedings of SPIE - The International Society for Optical Engineering	6604		0	0	0	0	0	1	0	0	1	0	0	0	0	0	2	0	2
1999	Optimization of the Cooke triplet with the various evolution strategies and the damped least squares	Vasiljevic Darko	0277786X	Proceedings of SPIE - The International Society for Optical Engineering	3780		0	1	1	3	5	4	2	2	1	2	2	1	1	0	25	0	25
1996	Memory elements based on inducted strain in polycarbonate	Golobic Janez, Vasiljevic Darko M.	0277786X	Proceedings of SPIE - The International Society for Optical Engineering	2779		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 1

	This is a citation overview for a set of 24 documents.																							
	Self Citations of all authors are excluded.																							
	h-index = 3 (Of the 24 documents considered for the h-index, 3 have been cited at least 3 times.)																							
	Scopus is in progress of updating pre-1996 cited references going back to 1970. The h-index might increase over time.																							
								<2005	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	subtotal	>2017	total
Publication Year	Document Title	Authors	ISSN	Journal Title	Volume	Issue	0	1	1	3	5	4	3	7	3	2	7	4	10	5	55	0	55
2016	Minimum resolvable temperature difference model, simulation, measurement and analysis	Knezevic D., Redjimi A., Miskovic K., Vasiljevic D., Nikolic Z., Babic J.	3068919	Optical and Quantum Electronics	48	6	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1
2016	Application of tot'hema eosin sensitized gelatin as a potential eye protection filter against direct laser radiation	Muric B.D., Pantelic D.V., Vasiljevic D.M., Savic-Sevic S.N., Jelenkovic B.M.	15671739	Current Applied Physics	16	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	2
2016	Optical analysis and performance evaluation of a solar parabolic dish concentrator	Pavlovic S.R., Vasiljevic D.M., Stefanovic V.P., Stamenkovic Z.M., Bellos E.A.	3549836	Thermal Science	20		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2015	Optical model and numerical simulation of the new offset type parabolic concentrator with two types of solar receivers	Pavlovic S., Vasiljevic D., Stefanovic V., Stamenkovic Z., Ayed S.	3542025	Facta Universitatis, Series: Mechanical Engineering	13	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	2
2014	Single-beam, dual-view digital holographic interferometry for biomechanical strain measurements of biological objects	Pantelic D.V., Grujic D.Z., Vasiljevic D.M.	10833668	Journal of Biomedical Optics	19	12	0	0	0	0	0	0	0	0	0	0	0	1	2	0	3	0	3
2014	Optimization of the double-Gauss objective with the various evolution strategies and the damped least squares	Bakic S., Vasiljevic D.	2811847	Physica Scripta	T162		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2013	Biomechanical model produced from light-activated dental composite resins: A holographic analysis	Pantelic D., Vasiljevic D., Blazic L., Savic-Sevic S., Muric B., Nikolic M.	2811847	Physica Scripta	T157		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2013	Sensitized gelatin as a versatile biomaterial with tailored mechanical and optical properties	Muric B., Pantelic D., Vasiljevic D., Zarkov B., Jelenkovic B., Pantovic S., Rosic M.	2811847	Physica Scripta	T157		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2012	Influence of cavity design preparation on stress values in maxillary premolar: A finite element analysis	Kantardzic I., Vasiljevic D., Blazic L., Luzanin O.	3539504	Croatian Medical Journal	53	6	0	0	0	0	0	0	0	0	1	0	3	0	0	2	6	0	6
2012	Influence of TESG layer viscoelasticity on the imaging properties of microlenses	Vasiljevic D., Muric B., Pantelic D., Panic B.	318949	Physica Scripta		149	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2011	Optimization of the Petzval objective with the various evolution strategies and the damped least squares	Vasiljevic D., Ilic S.	0277786X	Proceedings of SPIE - The International Society for Optical Engineering	7747		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2010	Protective effect of autophagy in laser-induced glioma cell death in vitro	Krmpot A.J., Janjetovic K.D., Misirkic M.S., Vucicevic L.M., Pantelic D.V., Vasiljevic D.M., Popadic D.M., Jelenkovic B.M., Trajkovic V.S.	1968092	Lasers in Surgery and Medicine	42	4	0	0	0	0	0	0	0	2	0	0	0	1	3	0	6	0	6
2009	Influence of chemical processing on the imaging properties of microlenses	Vasiljevic D., Muric B., Pantelic D., Panic B.	2811847	Physica Scripta T	T135		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2009	Aberrations of betanin sensitized gelatin microlenses	Vasiljevic D., Muric B., Pantelic D., Panic B.	5874246	Acta Physica Polonica A	116	4	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	1
2009	Holographic measurement of a tooth model and dental composite contraction	Pantelic D., Savic-Sevic S., Vasiljevic D., Muric B., Blazic L., Nikolic M., Panic B.	10426914	Materials and Manufacturing Processes	24	10-11	0	0	0	0	0	0	1	0	0	0	1	0	0	0	2	0	2
2009	Thermal analysis of microlens formation on a sensitized gelatin layer	Muric B., Pantelic D., Vasiljevic D., Panic B., Jelenkovic B.	1559128X	Applied Optics	48	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2008	Microlens fabrication on tot'hema sensitized gelatin	Muric B., Pantelic D., Vasiljevic D., Panic B.	9253467	Optical Materials	30	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2007	Properties of microlenses produced on a layer of tot'hema and eosin sensitized gelatin	Muric B.D., Pantelic D.V., Vasiljevic D.M., Panic B.M.	1559128X	Applied Optics	46	35	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	0	2
2007	Imaging properties of laser-produced parabolic profile microlenses	Vasiljevic D., Muric B., Pantelic D., Panic B.	5874246	Acta Physica Polonica A	112	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2007	Holographic measurement of dental tissue contraction and stress, due to postpolymerization reaction	Pantelic D., Blazic L., Savic-Sevic S., Muric B., Vasiljevic D., Panic B., Belic I.	5874246	Acta Physica Polonica A	112	5	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	0	2
2007	Real-time measurement of internal stress of dental tissue using holography	Pantelic D., Blazic L., Savic-Sevic S., Muric B., Vasiljevic D., Panic B., Belic I.	10944087	Optics Express	15	11	0	0	0	0	0	0	0	1	0	0	0	2	0	3	0	3
2007	Imaging properties of laser-produced Gaussian profile microlenses	Vasiljevic D., Pantelic D., Muric B.	0277786X	Proceedings of SPIE - The International Society for Optical Engineering	6604		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1999	Optimization of the Cooke triplet with the various evolution strategies and the damped least squares	Vasiljevic Darko	0277786X	Proceedings of SPIE - The International Society for Optical Engineering	3780		0	1	1	3	5	4	2	2	1	2	2	1	1	0	25	0	25
1996	Memory elements based on inducted strain in polycarbonate	Golobic Janez, Vasiljevic Darko M.	0277786X	Proceedings of SPIE - The International Society for Optical Engineering	2779		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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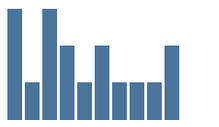

***h*-index**

5

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Sum of Times Cited

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Without self citations

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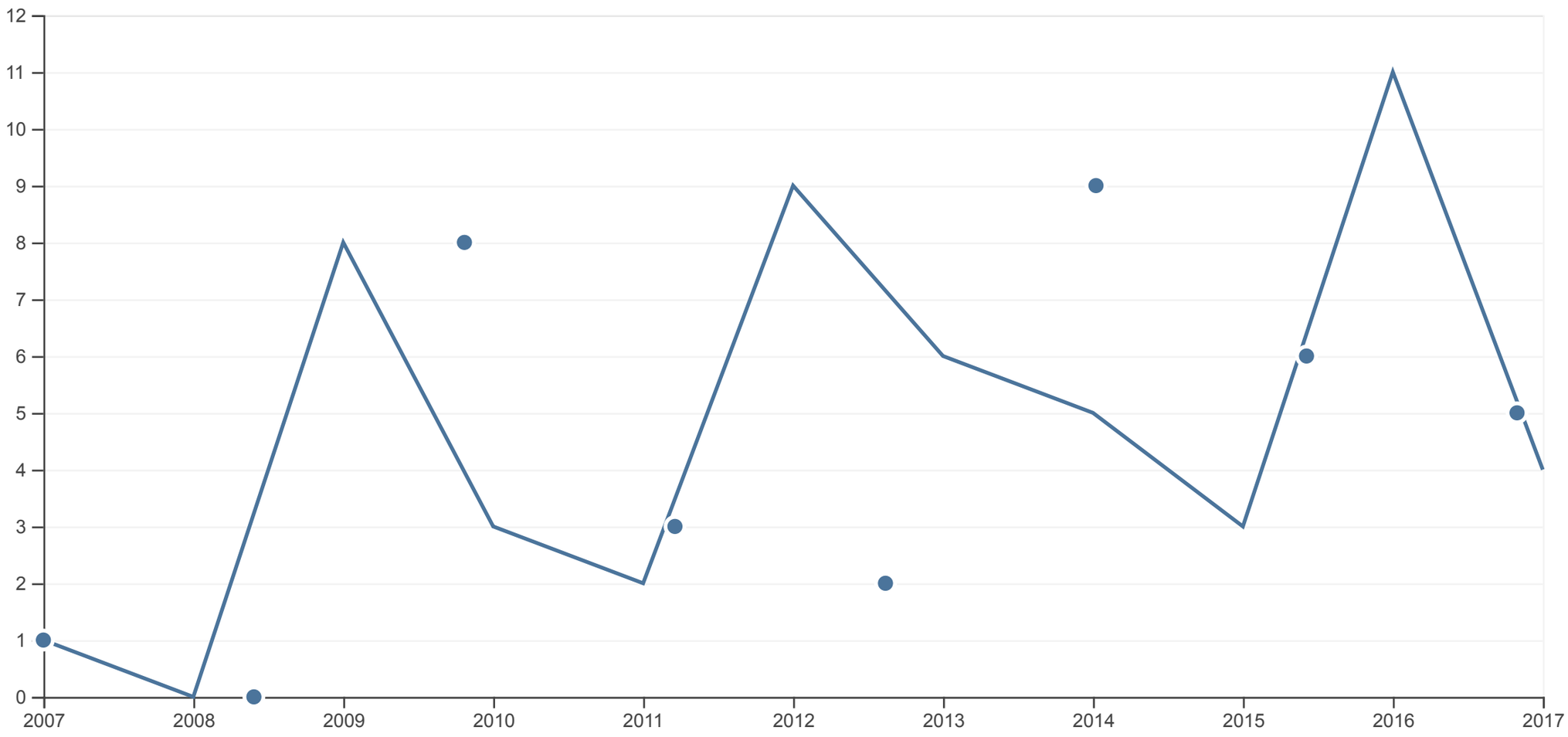

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1. **Properties of microlenses produced on a layer of tot'hema and eosin sensitized gelatin**

By: Muric, Branka D.; Pantelic, Dejan V.; Vasiljevic, Darko M.; et al.
APPLIED OPTICS Volume: 46 Issue: 35 Pages: 8527-8532 Published: DEC 10 2007

2. **Microlens fabrication on tot'hema sensitized gelatin**

By: Muric, Branka; Pantelic, Dejan; Vasiljevic, Darko; et al.
Conference: 1st International Conference on Physics of Optical Materials and Devices Location: Herceg Novi, MONTENEGRO Date: AUG 31-SEP 02, 2006
Sponsor(s): Vinca Inst; Lab Chimie Matiere Condensee Paris
OPTICAL MATERIALS Volume: 30 Issue: 7 Pages: 1217-1220 Published: MAR 2008

3. **Real-time measurement of internal stress of dental tissue using holography**

By: Pantelic, Dejan; Blazic, Larisa; Savic-Sevic, Svetlana; et al.
OPTICS EXPRESS Volume: 15 Issue: 11 Pages: 6823-6830 Published: MAY 28 2007

4. **Protective Effect of Autophagy in Laser-Induced Glioma Cell Death In Vitro**

By: Krmpot, Aleksandar J.; Janjetovic, Kristina D.; Misirkic, Maja S.; et al.
LASERS IN SURGERY AND MEDICINE Volume: 42 Issue: 4 Pages: 338-347 Published: APR 2010

5. **Thermal analysis of microlens formation on a sensitized gelatin layer**

By: Muric, Branka; Pantelic, Dejan; Vasiljevic, Darko; et al.
APPLIED OPTICS Volume: 48 Issue: 19 Pages: 3854-3859 Published: JUL 1 2009

6. **Single-beam, dual-view digital holographic interferometry for biomechanical strain measurements of biological objects**

By: Pantelic, Dejan V.; Grujic, Dusan Z.; Vasiljevic, Darko M.
JOURNAL OF BIOMEDICAL OPTICS Volume: 19 Issue: 12 Article Number: 127005 Published: DEC 2014

7. **Influence of cavity design preparation on stress values in maxillary premolar: a finite element analysis**

By: Kantardzic, Ivana; Vasiljevic, Darko; Blazic, Larisa; et al.
CROATIAN MEDICAL JOURNAL Volume: 53 Issue: 6 Pages: 568-576 Published: DEC 2012

8. **Holographic Measurement of a Tooth Model and Dental Composite Contraction**

By: Pantelic, Dejan; Savic-Sevic, Svetlana; Vasiljevic, Darko; et al.
MATERIALS AND MANUFACTURING PROCESSES Volume: 24 Issue: 10-11 Pages: 1142-1146 Published: 2009

9. **Application of tot'hema eosin sensitized gelatin as a potential eye protection filter against direct laser radiation**

By: Muric, Branka D.; Pantelic, Dejan V.; Vasiljevic, Darko M.; et al.
CURRENT APPLIED PHYSICS Volume: 16 Issue: 1 Pages: 57-62 Published: JAN 2016

10. **OPTICAL MODEL AND NUMERICAL SIMULATION OF THE NEW OFFSET TYPE PARABOLIC CONCENTRATOR WITH TWO TYPES OF SOLAR RECEIVERS**

By: Pavlovic, Sasa; Vasiljevic, Darko; Stefanovic, Velimir; et al.
FACTA UNIVERSITATIS-SERIES MECHANICAL ENGINEERING Volume: 13 Issue: 2 Pages: 169-180 Published: AUG 2015

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Timespan=All years. Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI.

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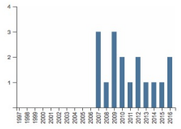
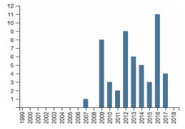


Sum of Times Cited by Year



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Average Citations per Item	3.06
h-index	5

Title	Authors	Corporate Authors	Editors	Book Editors	Source Title	Publication Date	Publication Year	Volume	Issue	Part Number	Supplement	Special Issue	Beginning Page	Ending Page	Article Number	DOI	Conference Title	Conference Date	Total Citations	Average per Year	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Properties of microlenses produc	Muric, Branka D.; Pantelic, [				APPLIED OPTICS	DEC 10 2007	2007	46	35				8527	8532	0	10.1364/AO.46.008527			10	0.91	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	2	2	1	1	1	0	0
Microlens fabrication on tothema	Muric, Branka; Pantelic, Dej				OPTICAL MATERIALS	MAR 2008	2008	30	7				1217	1220		10.1016/j.optmat.2007.05.051	1st International Conferen	AUG 31-SEP 02, 2006	7	0.7	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	2	2	0	0	0	0	0
Real-time measurement of interno	Pantelic, Dejan; Blazic, Lari				OPTICS EXPRESS	MAY 28 2007	2007	15	11				6823	6830		10.1364/OE.15.006823			7	0.64	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	1	0	1	0	2	0	0
Protective Effect of Autophagy in	Krmpot, Aleksandar J.; Janje				LASERS IN SURGERY AND MEDICINE	APR 2010	2010	42	4				338	347		10.1002/lsm.20911			6	0.75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	3	0	0
Thermal analysis of microlens fon	Muric, Branka; Pantelic, Dej				APPLIED OPTICS	JUL 1 2009	2009	48	19				3854	3859		10.1364/AO.48.003854			5	0.56	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2	0	0	1	0	0
Single-beam, dual-view digital hol	Pantelic, Dejan V.; Grujic, D				JOURNAL OF BIOMEDICAL OPTICS	DEC 2014	2014	19	12						127005	10.1117/1.JBO.19.12.127005			3	0.75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0
Influence of cavity design prepara	Kantardzic, Ivana; Vasiljevic				CROATIAN MEDICAL JOURNAL	DEC 2012	2012	53	6				568	576		10.3325/cmj.2012.53.568			3	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2	0	0
Holographic Measurement of a Tc	Pantelic, Dejan; Savic-Sevic				MATERIALS AND MANUFACTURING PROCESSES	2009	2009	24	10-11				1142	1146		10.1080/10426910902979470			3	0.33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0
Application of tothema eosin sen	Muric, Branka D.; Pantelic, [				CURRENT APPLIED PHYSICS	JAN 2016	2016	16	1				57	62		10.1016/j.cap.2015.09.014			2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
OPTICAL MODEL AND NUMERI	Pavlovic, Sasa; Vasiljevic, D				FACTA UNIVERSITATIS-SERIES MECHANICAL ENG	AUG 2015	2015	13	2				169	180					2	0.67	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
Optimization of the Petzval object	Vasiljevic, Darko; Ilic, Slobo			Dreischuh, T; Sla	16TH INTERNATIONAL SCHOOL ON QUANTUM EL	2011	2011	7747							UNSP 77471D	10.1117/12.881213	16th International School c	SEP 20-24, 2010	1	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Three Dimensional Mathematical	Puskar, Tatjana; Vasiljevic, D				SRPSKI ARHIV ZA CELOKUPNO LEKARSTVO	JAN-FEB 2010	2010	138	1-2				19	25		10.2298/SARH1002019P			1	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Influence of chemical processing	Vasiljevic, Darko; Muric, Bra				PHYSICA SCRIPTA	JUL 2009	2009	T135							14047	10.1088/0031-8949/2009/T135/014047	15th Central European Wo	MAY 29-JUN 03, 2008	1	0.11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Imaging properties of laser-produ	Vasiljevic, Darko; Pantelic, D			Atanasov, PA; Dre	14th International School on Quantum Electronics: La	2007	2007	6604					Q6040	Q6040	66040Q	10.1117/12.726901	14th International School c	SEP 18-22, 2006	1	0.09	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
OPTICAL ANALYSIS AND PERFO	Pavlovic, Sasa R.; Vasiljevic				THERMAL SCIENCE	2016	2016	20				5	S1237	S1249		10.2298/TSCI16S5237P	17th Symposium of the So	OCT 20-23, 2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Biomechanical model produced fr	Pantelic, Dejan; Vasiljevic, D				PHYSICA SCRIPTA	NOV 2013	2013	T157							14021	10.1088/0031-8949/2013/T157/014021	3rd International Conferen	SEP 02-06, 2012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Influence of TESG layer viscoelas	Vasiljevic, Darko; Muric, Bra				PHYSICA SCRIPTA	APR 2012	2012	T149							14070	10.1088/0031-8949/2012/T149/014070	3rd International School ar	AUG 29-SEP 02, 2011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Република Србија
МИНИСТАРСТВО ПРОСВЕТЕ, НАУКЕ И ТЕХНОЛОШКОГ РАЗВОЈА
Комисија за стицање научних звања

Број:660-01-00006/78
27.09.2017. године
Б е о г р а д

На основу члана 22. став 2. члана 70. став 5. и члана 86. ст. 1. и 2. Закона о научноистраживачкој делатности ("Службени гласник Републике Србије", број 110/05 и 50/06 – исправка, 18/10 и 112/15), члана 3. ст. 1. и 3., члана 32. став 1., члана 35. став 2. и члана 40. Правилника о поступку, начину вредновања и квантитативном исказивању научноистраживачких резултата истраживача ("Службени гласник Републике Србије", број 24/16, 21/17 и 38/17) и захтева који је поднео

Институт за физику у Београду

Комисија за стицање научних звања на седници одржаној 27.09.2017. године, донела је

ОДЛУКУ
О СТИЦАЊУ НАУЧНОГ ЗВАЊА

Др Дарко Васиљевић
стиче научно звање
Виши научни сарадник
Р е и з б о р

у области природно-математичких наука - физика

О Б Р А З Л О Ж Е Њ Е

Институт за физику у Београду

утврдио је предлог број 178/1 од 07.02.2017. године на седници Научног већа Института и поднео захтев Комисији за стицање научних звања број 198/1 од 13.02.2017. године за доношење одлуке о испуњености услова за реизбор у научно звање ***Виши научни сарадник***.

Комисија за стицање научних звања је по претходно прибављеном позитивном мишљењу Матичног научног одбора за физику на седници одржаној 27.09.2017. године разматрала захтев и утврдила да именовани испуњава услове из члана 70. став 5. и члана 86. ст. 1. и 2. Закона о научноистраживачкој делатности ("Службени гласник Републике Србије", број 110/05 и 50/06 – исправка, 18/10 и 112/15), члана 3. ст. 1. и 3., члана 32. став 1., члана 35. став 2. и члана 40. Правилника о поступку, начину вредновања и квантитативном исказивању научноистраживачких резултата истраживача ("Службени гласник Републике Србије", број 24/16, 21/17 и 38/17) за реизбор у научно звање ***Виши научни сарадник,*** па је одлучила као у изреци ове одлуке.

Доношењем ове одлуке именовани стиче сва права која му на основу ње по закону припадају.

Одлуку доставити подносиоцу захтева, именованом и архиви Министарства просвете, науке и технолошког развоја у Београду.

ПРЕДСЕДНИК КОМИСИЈЕ

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С. Стошић-Грујичић

МИНИСТАР

Младен Шарчевић