

Naučnom veću Instituta za fiziku

Beograd, 12. Mart 2015. g.

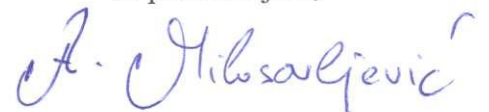
Predmet: Molba za pokretanje postupka za sticanje zvanja naučni savetnik

S obzirom da ispunjavam kriterijume propisane od strane Ministarstva prosvete, nauke i tehnološkog razvoja za sticanje naučnog zvanja naučni savetnik, molim Naučno veće Instituta za fiziku da pokrene postupak za moj izbor u navedeno zvanje.

U prilogu dostavljam:

1. Mišljenje rukovodioca projekta
2. Obrazloženje za izbor u zvanje
3. Kratku biografiju
4. Pregled naučne aktivnosti
5. Elemente za kvalitativnu ocenu naučnog doprinosa
6. Elemente za kvantitativnu ocenu naučnog doprinosa
7. Spisak objavljenih radova i njihove kopije
8. Podatke o citiranosti sa Web of Science

Sa poštovanjem,



dr Aleksandar Milosavljević
viši naučni saradnik

Naučnom veću Instituta za fiziku

Beograd, 12. mart 2015. g.

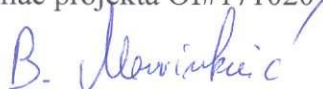
Predmet: Mišljenje rukovodioca projekta za izbor dr Aleksandra Milosavljevića u zvanje naučni savetnik

Dr Aleksandar Milosavljević je zaposlen u Laboratoriji za fiziku atomskih sudarnih procesa Instituta za fiziku, angažovan na projektu osnovnih istraživanja Ministarstva prosvete, nauke i tehnološkog razvoja ON 171020, pod nazivom „Fizika sudara i fotoprocasa u atomskim, (bio)molekulskim i nanodimenzionim sistemima”. Na pomenutom projektu radi na temama “Istraživanje interakcije elektrona sa biomolekulima i nanočesticama”, “Transmisija elektrona kroz nanokapilare” i “Interakcija sinhrotronskog zračenja sa biomolekulima”. S obzirom da ispunjava sve predviđene uslove, u skladu sa Pravilnikom o postupku i načinu vrednovanja i kvantitativnom iskazivanju naučnoistraživačkih rezultata Ministarstva prosvete, nauke i tehnološkog razvoja, saglasan sam sa pokretanjem postupka i predlažem izbor dr Aleksandra Milosavljevića u zvanje naučni savetnik.

Za sastav Komisije za izbor dr Aleksandra Milosavljevića u zvanje naučni savetnik predlažem kolege:

- (1) dr Bratislav Marinković, naučni savetnik, IF,
- (2) akademik prof. dr Miljenko Perić, redovni profesor FFH i član SANU,
- (3) dr Dragutin Šević, naučni savetnik, IF,
- (4) prof. dr Dragoljub Belić, redovni profesor FF
- (5) dr Jozo Jureta, naučni savetnik, IF.

Rukovodilac projekta OI#171020,



dr Bratislav Marinković
naučni savetnik
Institut za fiziku, Univerzitet u Beogradu

Научном већу Института за физику

Београд, 12. март 2015. год.

Предмет: Образложење предлога за избор др Александра Милосављевића у звање научни саветник

Др Александар Милосављевић тренутно има звање виши научни сарадник, и у том звању се налази од децембра 2010. године. Његов избор у звање научни саветник се, дакле, покреће 3 месеца раније у односу на стандардну процедуру. Ово покретање је оправдано узевши у обзир следеће разлоге.

Др Милосављевић је током последњих година остварио велики број научних резултата из различитих области, а посебно се истиче рад из области спектроскопије јона биополимера (пептида, протеина и ДНК) гд су урађени пионирски експерименти и добијени важни резултати који су публиковани у веома престижним научним часописима и имали значајан одјек у научној јавности. При томе, како по квантитативним, тако и по квалитативним мерилима, кандидат је након претходног избора остварио далеко више резултата него што је неопходно за избор у звање научни саветник. Према квантитативним мерилима, кандидат има преко 3 пута више бодова од неопходних, а у категорији М10,М20,М30 преко 5 пута више од неопходних.

Др Милосављевић је руководио израдом једног докторског рада, тренутно руководи израдом још једног докторског рада који треба да буде одбрањен до 2016. године и руководи израдом више дипломских и мастер радова. Члан је научних комитета реномираних међународних конференција, био је или је члан управних одбора научних друштава и европских пројеката и руководио је или руководи већим бројем пројеката међународне билатералне сарадње. Кандидат има разноврсну у живу међународну сарадњу, а иницирао је и већи број пројеката остварених од стране наших научника на синхротрну СОЛЕИЛ у Француској.

Због свега наведеног, као и детаљних резултата приказаних у приложеном материјалу, сматрам да треба без одлагања покренути избор др Александра Милосављевића у звање научни саветник.



др Братислав Маринковић
научни саветник

Институт за физику, Универзитет у Београду

Biografija Dr Aleksandra Milosavljevića

Aleksandar Milosavljević je rođen 19.03.1973. godine u Zaječaru, Srbija. Diplomirao je na Fizičkom fakultetu 1998. godine. Na Institutu za fiziku počinje da radi 1999. godine kao stipendista Ministarstva za nauku i tehnologiju. Rad na Institutu prekida u periodu 09/2000 – 09/2001 radi odsluženja vojnog roka, tokom kojeg završava obuku za rezervnog oficira tehničke službe VRS.

Magistrirao je (2004. godine) i doktorirao je (2006. godine) na Fizičkom fakultetu, u oblasti fizike atomskih sudara. U okviru postdokorskog usavršavanja radio je na sinhrotronu SOLEIL u Francuskoj (2009 godina), gde je rukovodio razvojem aparature za francuski ANR projekat „Synchrotron Radiation for Tandem Mass Spectrometry” i učestvovao u finalizaciji eksperimentalne stanice („*beamline*”) DISCO (Dichroism, Imaging and mass Spectrometry for Chemical and biOlogical systems). Posедуje aktivno i stručno znanje engleskog i francuskog jezika. Aleksandar Milosavljević je 22.12.2010. godine izabran u zvanje višeg naučnog saradnika.

Osnovna oblast istraživanja Aleksandra Milosavljevića je atomska i molekulska fizika. Poseduje iskustvo u oblasti elektronske, ftonske i masene spektroskopije, simulacijama kretanja elektrona, vakuumskoj tehnici i automatskoj akviziciji podataka. Tokom postdokorskog rada u Laboratoriji za atomske sudarne procese Instituta za fiziku u Beogradu, Aleksandar Milosavljević je dao značajan doprinos razvoju novih eksperimentalnih metoda (npr. implementiranje sistema za merenje apsolutnih diferencijalnih preseka ”relative flow” metodom) i otvaranju novih istraživačkih pravaca: 1) merenje apsolutnih preseka za interakciju elektrona sa molekulima koji predstavljaju delove DNK i proteina; 2) transmisija elektrona malih energija kroz izolatorske i provodne mikro i nanokapilare. Rukovodio je tehnološkim projektom „Karakterizacija izolatorskih nanokapilara pomoću elektronskog mlaza” (finansiran od strane Ministarstva za nauku i tehnološki razvoj RS, evidencioni broj 23024, godina 2008).

Tokom svog postdokorskog rada na sinhrotronu SOLEIL u Francuskoj, Aleksandar Milosavljević je aktivno učestvovao u razvoju novog eksperimentalnog sistema za tandem masenu akcionu spektroskopiju jona velikih biopolimera (peptida, proteina, DNK) zarobljenih u gasnom stanju u jonskoj zamci. Nakon povratka u matičnu instituciju u Srbiji, nastavio je da se veoma aktivno bavi ovom tematikom, rukovodio brojnim projektima na sinhrotronu i ostvario značajne rezultate u ovoj oblasti, koji su generalno vezani za: 1) nove aktivacione metode za tandem masenu spektrometriju korišćenjem VUV zračenja u cilju efikasnijeg sekvenciranja proteina ili drugih biopolimera; 2) akcionu VUV ili X-ray spektroskopiju biopolimera u jonskoj zamci u cilju istraživanja njihovih fizičko-hemijskih osobina.

Rukovodio je izradom doktorske teze dr Jelene Maljković, koja je doktorirala na Fizičkom fakultetu Univerziteta u Beogradu 2014. godine. Trenutno rukovodi izradom doktorske teze Miloša Rankovića koji je započeo sa radom u decembru 2012. godine, a 11. marta 2015. godine je tema doktorske teze odobrena od strane Kolegijuma doktorskih studija Fizičkog fakulteta Univerziteta u Beogradu. Dr Milosavljević takođe rukovodi izradom master rada Ive Bačić koja je započela sa radom 2014. godine na Fizičkom fakultetu Univerziteta u Beogradu, kao i diplomskim radovima Dijane Đeordić i Jelene Vuković na Odseku za fiziku, Prirodno matematičkog fakulteta Univerziteta u Banja Luci.

Aleksandar Milosavljević ima izuzetno aktivnu međunarodnu naučnu saradnju. Rukovodio je ili trenutno rukovodi međunarodnim bilateralnim projektima (Srbija-Slovenija 2008-2009, Srbija-Slovačka 2010-2011, Srbija-Francuska 2012-2013, Srbija-Mađarska 2013-2015, Srbija-Nemačka 2014-2015), kao i brojnim projektima vezanih za merenja na sinhrotronu SOLEIL u Franckoj. Počevši od 2004 godine, obavio je brojne studentske boravke (1-2 meseca) u stranim laboratorijama: "Universite de Liege", Belgija (2004); "Leopold-Franzens Universität Innsbruck", Austrija (2005); "Gdansk University of Technology", Poljska (2006); "Comenius University, Bratislava", Slovačka (2007); "Laboratoire des Collisions Atomiques et Moléculaires, Orsay", Francuska (2008); "Jožef Stefan Institute, Ljubljana", Slovenija (2008). Aktivno je učestvovao ili učestvuje u više ESF/COST akcija, a bio je ili je trenutno član Upravnog komiteta, kao predstavnik Srbije, akcija ESF/COST Action CM1301: "Chemistry for Electron-Induced Nanofabrication (CELINA) i ESF/COST Action MP1002: "Nano-scale insights in ion beam cancer therapy (Nano-IBCT)".

Bio je ko-sekretar organizacionog komiteta međunarodne konferencije SPIG 2006. Takođe je bio predsednik organizacionog odbora 1st National Conference on Electronic, Atomic, Molecular and Photonic Physics (CEAMPP 2008), editor ove nacionalne konferencije i gost editor specijalnog broja Facta Universitatis, Series Phys. Chem. Technol. **6**, 2008. Bio je sekretar Organizacionog komiteta međunarodne konferencije 5th Conference on Elementary Processes in Atomic Systems (CEPAS2011) i editor knjige knjige kontribucija i rezimea predavanja 5thCEPAS&2ndCEAMPP. Aleksandar Milosavljević je bio i ko-predsednik organizacionog komiteta međunarodne konferencije 27th Summer School and Int. Symp. on Physics of Ionized Gases (SPIG2014), editor knjige knjige kontribucija i rezimea predavanja sa ove konferencije, kao i gost editor specijalnog broja J. Phys. Conf. Ser. (IoP) posvećenog ovoj konferenciji. Takođe je ko-predsednik Naučnog komiteta međunarodne konferencije SPIG, član Generalnog komiteta međunarodne konferencije International Conference on Photonic, Electronic and Atomic Collisions (ICPEAC) i član Naučnog komiteta nacionalne konferencije CEAMPP. Bio je član Upravnog odbora Društva fizičara Srbije (2012-2014).

Aleksandar Milosavljević je angažovan kao gostujući profesor na predmetima u okviru oblasti Atomska, molekulska i hemijska fizika, na Odseku za fiziku Prirodno matematičkog fakulteta, Univerziteta u Banja Luci, Republika Srpska, BiH, kao i na doktorskim studijama na Fizičkom fakultetu Univerziteta u Beogradu u okviru uže naučne oblasti Fizika atoma i molekula.

Aleksandar Milosavljević ima objavljen veći broj naučnih radova, od čega je 40 publikovano u renomiranim međunarodnim časopisima sa ISI liste. Do februara 2015. godine njegovi radovi su prema Web of Science citirani više od 400 puta bez autocitata, *significance factor* $h = 13$ (n papers cited more than n times). Održao je takođe veći broj predavanja po pozivu na međunarodnim skupovima i u inostranim naučnim ustanovama.

Pregled naučne aktivnosti

Naučna aktivnost dr Aleksandra R. Milosavljevića u dosadašnjoj karijeri je vezana za oblast atomske, molekulske i hemijske fizike, pre svega za eksperimentalna istraživanja procesa interakcije elektrona, fotona i jona sa atomima i (bio)molekulima u gasnom stanju.

Istraživanje procesa međusobne interakcije čestica, pod dobro definisanim uslovima koji se mogu ostvariti kod eksperimenata u gasnoj fazi, je važno za fundamentalno razumevanje prirode; kako strukture i fizičko-hemijskih karakteristika atoma i molekula, tako i samih sudarnih procesa i kvantnomehaničkih metoda kojima se oni opisuju. Takođe, istraživanje procesa interakcije elektrona, fotona ili jona sa atomima i molekulima ima i veliki aplikativni značaj, a može pružiti važne podatke za istraživanja i primene u drugim naučnim oblastima, na pimer: biomedicini i istraživanjima radijacionog oštećenja žive materije, fizici plazme, astrofizici itd.

Elektronska spektroskopija molekula i relativno malih biomolekula u gasnom stanju je predmet savremenih teorijskih i eksperimentalnih razmatranja sofisticiranim metodama. Sa jedne strane, ova istraživanja omogućuju razumevanje elektronske strukture molekula i od velikog su interesa za fundamentalna istraživanja u hemiji, fizici, fizičkoj hemiji i biologiji. Naime, elektronski indukovana pobuda molekula, iako inferiorna u pogledu energijske rezolucije u odnosu na savremenu fotonsku spektroskopiju korišćenjem lasera i sinhrotronskog zračenja, omogućuje istraživanje dipolno zabranjenih prelaza, kao i dodatnih procesa i efekata, kao na primer disocijativnog elektronskog zahvata. Sa druge strane, interakcija zračenja visoke energije sa materijom proizvodi u procesima jonizacije ogroman broj elektrona. Iako ovi sekundarni elektroni imaju relativno male energije, oni ukupno sadrže dominantni deo energije koja je deponovana u materiji od strane jonizujućeg zračenja. Dakle, istraživanja procesa interakcije elektrona niskih i srednjih energija sa biomolekulima i merenje apsolutnih parametara ovih interakcija (npr. preseka za rasejanje) je od važnosti za razumevanje i modelovanje procesa radijacionog oštećenja.

Teorijski prilazi za istraživanje procesa interakcije elektrona i (bio)molekula su još uvek na nivou aproksimacija, kao što su aproksimacije R-matričnog metoda sa pojednostavljenom simetrijom molekula i redukovanim brojem vibracionih modova ili u okviru modela rasejanja na individualnim atomima u molekulu (IAM) sa

uključivanjem statičkog i polarizacionog model potencijala. Eksperimentalnih rezultata u vidu diferencijalnih i integriranih efektivnih preseka za elastično rasejanje elektrona kao i za pobudu elektronskih i vibracionih stanja je relativno malo. U slučaju kompleksnijih molekula, kao što su biološki molekuli, pouzdana eksperimentalna merenja su veoma zahtevna i dodatno je bio izražen nedostatak eksperimentalnih podataka. Upravo u toj oblasti je značajan doprinos kandidata. Elektronska spektroskopija molekula od biološkog interesa zahteva visok tehnološki nivo eksperimenta. Na temperaturama od oko 300 K naponi pare ovih molekula su dovoljni za formiranje efuzionih molekulskih snopova i njihovo proučavanje. Kompromis između željene visoke rezolucije i električnog signala koji pri tome pada, tako da se količnik signal-fon takođe smanjuje, nameće posebne zahteve pri merenju diferencijalnih preseka koji u domenu srednjih energija upadnih elektrona (10-100 eV) opadaju i nekoliko redova veličine za uglove rasejanja od 0 do 90 stepeni.

Razvoj lasera i nove generacije moćnih sinhrotronskih izvora zračenja u poslednjih par decenija je omogućio izvanredno efikasnu i preciznu fotonsku spektroskopiju molekula i materijala, visoke rezolucije po energiji. Konkretno, postoji veliki broj rezultata u širokoj oblasti energije fotona za organske molekule i relativno mali biološke molekule, na primer amino kiseline i nukleobaze, koji predstavljaju gradivne delove važnih biopolimera proteina i DNK. Ovi sistemi su još uvek dovoljno mali da mogu biti dovedeni u gasnu fazu, na primer u obliku efuzivnog mlaza, ako im je napon pare dovoljno veliki ili korišćenjem grejanjem. Problemi međutim postoje kod termalno labilnih molekula (kao na primer amino kiseline) gde se temperatura sublimacije mora vrlo pažljivo kontrolisati, dok je kod većih biopolimera (npr. proteina) ovakve eksperimente – spektroskopiju u gasnoj fazi – bilo nemoguće izvesti. Otkriće modernih tehnika za jonizaciju biomolekula, kao što je „electro spray ionization“ (ESI) omogućilo je da se ogromni molekuli prevedu u gasnu fazu, direktno iz rastvora formiranjem pozitivnih ili negativnih jona, koji se zatim mogu analizirati metodom masene spektrometrije sa velikom osetljivošću. Konkretno, metoda tandem masene spektrometrije, kada se određeni prekursor (definisano odnosom mase i naelektrisanja) izoluje, aktivira i analizira njegova fragmentacija, predstavlja osnovu za vrlo efikasno sekvenciranje proteina takozvanom „top-down“ metodom. Jasno se nameće ideja da je moguće iskoristiti ove moderne tehnike za dobijanje jona velikih biopolimera u gasnom stanju i njihovu fotonsku spektroskopiju. Na žalost ovo je eksperimentalno veoma teško izvodljivo zbog

izuzetno male gustine mete koja se može ostvariti kod naelektrisanih čestica usled Kulonove interakcije, posebno u oblasti visokih energija fotona, VUV i X-ray, gde ne postoje intenzivni laserski izvori, pa je i struja projektila vrlo mala. Konkretno, prvi uspešan eksperiment ovog tipa u svetu, koji je omogućio VUV i X-ray spektroskopiju jona celih proteina u gasnoj fazi i koji se bazirao na povezivanju ESI izvora, linearne jonske zamke i sinhrotronskog zračenja, ostvaren je pre nekoliko godina na sinhrotronu SOLEIL u Francuskoj od strane dr Milosavljevića i saradnika. Dobijeni rezultati omogućili su intenzivan razvoj i primenu jedne nove metodologije za sekvenciranje i spektroskopiju biopolimera.

Tokom rada na svojoj magistarskoj i doktorskoj tezi, kandidat se prevashodno bavio proučavanjem rasejanja elektrona na atomima inertnih gasova i malim biomolekulima koji predstavljaju delove DNKA lanca. Nakon doktorske disertacije, kao i nakon izbora u prethodno zvanje, naučna aktivnost dr Aleksandra Milosavljevića se može podeliti u tri pravca, prema problematici kojom se bavio:

- a) rasejanje elektrona na molekulima od biološkog interesa;*
- b) transmisija i vođenje niskoenergijskih elektrona kroz mikro i nanokapilare;*
- c) interakcija sinhrotronskog zračenja sa biopolimerima i nanosolvatisanim biomolekulima.*

a) Rasejanje elektrona na molekulima od biološkog interesa

Rad i rezultati kandidata u okviru ove problematike se grubo mogu podeliti u dve oblasti.

a1) Merenje apsolutnih diferencijalnih preseka za rasejanje elektrona na molekulima koji reprezentuju delove DNK i proteina

Najvažniji radovi:

- A. R. Milosavljević, A. Giuliani, D. Šević, M.-J. Hubin-Franskin and B. P. Marinković, Elastic scattering of electrons from tetrahydrofuran molecule, *Eur. Phys. J. D.* **35** (2) 411-416 (2005) ;
- A. R. Milosavljević, F. Blanco, J. B. Maljković, D. Šević, G. García, and B. P. Marinković, "Absolute cross sections for elastic electron scattering from 3-hydroxytetrahydrofuran", *New J. Phys.* **10** 103005 (2008)

- J. B. Maljković, A. R. Milosavljević, F. Blanco, D. Šević, G. García, and B. P. Marinković, “Absolute differential cross sections for elastic scattering of electrons from pyrimidine”, *Phys. Rev. A* **79**, 052706 (2009)
- J. B. Maljković, F. Blanco, G. García, B. P. Marinković, and A. R. Milosavljević, “Absolute cross sections for elastic electron scattering from methylformamide”, *Phys. Rev. A* **85** 042723 (2012)

Od posebnog interesa su bili molekuli koji predstavljaju vezivni deo u DNK lancu ili proteinu, razmatrani su molekuli analogni po strukturi sa dezoksiribozom, to su furan, tetrahidrofuran (THF), tetrahidrofurfuril alkohol (THFA), 3-hidroksitetrahidrofuran (3hTHF), riboza i furan. Takođe su rađena istraživanja na molekulu pirimidina koji predstavlja analogon pirimidinskih nukleinskih baza timina i citozina kao i uracila, kao i molekulima formamid i N-metilformamid koji predstavljaju peptidnu vezu kod proteina. Izmerene su apsolutne vrednosti preseka za elastično rasejanje elektrona na molekulu pirimidina. Preseci su određeni korišćenjem metode ukrštenih mlazeva i pomoću tehnike relativnih protoka gasa poznatog preseka. Domen energija je od 50 – 300 eV a uglova rasejanja od 20° – 110°. Merene su nezavisno ugaone i energijske zavisnosti preseka. Merenja su urađena u Beogradu dok je proračun preseka modelom nezavisnih atoma sa korekcijama ekraniranja izveden u Madridu u saradnji sa kolegama sa CSIC instituta. U saradnji sa eksperimentalnom grupom u Gdanjsku, Poljska, vršena su merenja elastičnog rasejanja i vibracionog pobuđivanja THF molekula u domenu niskih energija elektrona, do 20 eV.

a2) Elektronska spektroskopija biomolekula, kao i istraživanje procesa disocijativnog elektronskog zahvata i elektronski indukovane fragmentacije

Najvažniji radovi:

- Dissociative electron attachment to furan, tetrahydrofuran and fructose , P. Sulzer, S. Ptasińska, F. Zappa, B. Mielewska, A. R. Milosavljević, P. Scheier, T. D. Maerk, I. Bald, S. Gohlke, M. A. Huels, and E. Illenberger, *J. Chem. Phys.* **125**, 044304 (2006)
- A. Giuliani, P. Limão-Vieira, D. Dufloy, A. R. Milosavljević, B. P. Marinković, S. V. Hoffmann, N. Mason, J. Delwiche and M. -J. Hubin-

Franskin, "Electronic states of neutral and ionized tetrahydrofuran studied by VUV spectroscopy and ab initio calculations", Eur. Phys. J. D. 51(1) 97 – 108 (2009).

- A. R. Milosavljević, J. Kočišek, P. Papp, D. Kubala, B.P. Marinković, P. Mach, J. Urban and Š. Matejčik, "Electron ionization of furanose alcohols", J. Chem. Phys. 132 104308 (2010)
- R. Janečková, O. May, A.R. Milosavljević, and J. Fedor, "Partial cross sections for dissociative electron attachment to tetrahydrofuran reveal a dynamics-driven rich fragmentation pattern", Int. J. Mass. Spectrom. 365-366, 163 – 168 (2014)

Na čitavom nizu molekula (furan, THF i fruktoza) posmatrani su procesi disocijativnog elektronskog zahvata. Eksperimenti su vršeni u okviru ukrštenih mlazeva elektrona i molekula sa masenom spektrometrijskom detakcijom aniona. Eksperimenti su izvedeni u Insbruku, Austrija i Fribourgu, Švajcarska. Ustanovljeno je da su za razliku od THF i furana, molekuli fruktoze senzitivni na elektrone niskih energija (<3 eV) i da su otuda oni odgovorni za degradaciju prstenaste strukture i da predstavljaju aktivni deo u inicijalnim molekulskim procesima koji dovode do jednostrukog prekida DNK lanca. Sa druge strane, najnovija merenja rađena u Švajcarskoj su donela detaljno razmatranje fragmentacije THF molekula. Merenja rađena u Slovačkoj su omogućila detaljno razmatranje elektronski indukovane fragmentacije nekoliko različitih furanoznih alkohola, te uticaja posebnih funkcionalnih grupa na proces fragmentacije.

b) Transmisija i vođenje niskoenergijskih elektrona kroz mikro i nanokapilare

Rad i rezultati kandidata u okviru ove problematike mogu se takođe podeliti u dve oblasti.

b1) Transmisija i vođenje niskoenergijskih elektrona kroz izolatorske nanokapilare

Najvažniji radovi:

- R. Milosavljević, Gy. Viktor, Z. Pešić, P. Kolarž, D. Šević, B. P. Marinković, S. Matefi-Tempfli, M. Matefi-Tempfli, and L. Piraux,

“Guiding of low-energy electrons by highly ordered Al₂O₃ nanocapillaries”, *Phys. Rev. A* 75 030901(R) (2007) Rapid Communication

- R. Milosavljević, J. J. Jureta, Gy. Viktor, Z. Pešić, D. Šević, S. Mátéfi-Tempfli, M. Mátéfi-Tempfli, and B. P. Marinković, “Low-energy electron transmission through high aspect ratio Al₂O₃ nanocapillaries”, *Europhysics Letters* **86** 23001 (2009)

Istraživanja transmisije i efekata vođenja niskoenergijskih elektrona kroz izolatorske nanokapilare je rađeo u saradnji sa Université Catholique de Louvain u Belgiji, čiji su saradnici pripremili uzorke sa matricama izolatorskih kapilara nanometarskih dimenzija. Sva merenja i obrada rezultata rađeni su na Institutu za fiziku u Beogradu pod rukovodstvom dr Aleksandra Milosavljevića. Ovime je Laboratorija takođe zakoračila u savremenu oblast nanonauka i interakcija atomskih čestica sa površinama. Po prvi put u svetskim razmerama na primeru elektronskih mlazeva, a po uzoru na jonske mlazeve, dobijeni su eksperimentalni rezultati koji potvrđuju efekte vođenja mlaza elektrona kroz nanokapilare napravljene od Al₂O₃ materijala sa prečnikom kapilara od 50 do 200 nm. Treba reći da je na ovim radovima ostvarena takođe i naučna saradnja sa našim istraživačima iz dijaspore.

b1) Transmisija i vođenje niskoenergijskih elektrona kroz provodne i izolatorske mikro i makroskopske kapilare

Najvažniji radovi:

- A.R. Milosavljević, K. Schiessl, C. Lemell, K. Tőkési, M. Mátéfi-Tempfli, S. Mátéfi-Tempfli, B.P. Marinković, and J. Burgdörfer, “Charging dynamics in electron transmission through Al₂O₃ capillaries”, *Nucl. Instrum. Meth. B.* 279 190-193 (2012).
- R. Milosavljević, M. Lj. Ranković, D. Borka, J. B. Maljković, R. J. Berezky, B. P. Marinković and K. Tőkési, “Study of electron transmission through a platinum tube”, *Nucl. Instr. Meth. B* (2015), [DOI: 10.1016/j.nimb.2014.11.087](https://doi.org/10.1016/j.nimb.2014.11.087)

Nakon prvih eksperimenata transmisije elektrona kroz nanokapilare, ispostavilo se da je ovaj proces mnogo kompleksniji u poređenju sa procesom vođenja visokonaelektrisanih jona koji se dominantno zasniva na Kulonovoj interakciji dolazećih naelektrisanih čestica sa naelektrisanjem koje je deponovano na unutrašnjim zidovima kapilara. Naime, u slučaju kada su elektroni projektili, procesi interakcije sa površinom kapilare imaju veoma značajnu ulogu. Eksperimentalni rad kandidata upravo bavi ovom problematikom. Dodatno treba reći da ova istraživanja imogu imati i aplikativni značaj zasnovan na manipulaciji elektrona niskih energija na mikro i nanoskali.

c) Interakcija sinhrotronskog zračenja sa biopolimerima i nanosolvatisanim biomolekulima

Tokom svog postdokorskog rada na liniji DISCO (Dichroism, Imaging and mass Spectrometry for Chemical and biOlogical systems) na sinhrotronu SOLEIL u Francuskoj, dr A. Milsavljević je rukovodio razvojem aparature za projekat „Synchrotron Radiation for Tandem Mass Spectrometry”. Rezultat ovog rada, u saradnji sa kolegama sa sinhrotrona SOLEIL, je razvoj novog eksperimentalnog sistema za spektroskopiju jona dobijenih iz elektrosprej uređaja i zarobljenih u linearnoj jonskoj zamci, pomoću sinhrotronskog VUV i X-ray zračenja i korišćenjem metode tandem masene spektrometrije. Ovaj sistem omogućava kako izučavanje primarne i sekundarne strukture biopolimera (npr. sekvenciranje proteina ili izučavanje odmotavanje proteina u vakuumu), tako i izučavanje njihovih fizičko hemijskih karakteristika. Kod ove metode, u tandem spektrometru se selektuje i izoluje željeni molekul (prekursor) te se izaziva njegova dalja aktivacija koja ima za posledicu fragmentaciju ili jonizaciju, nakon čega se snima maseni spektar za datu energiju aktivacije. Ovom metodom je omogućena spektroskopija kako velikih izolovanih biomolekula, tako i malih molekula liganada koji formiraju nekovalentne komplekse. Poseban tehnološki izazov u radu je predstavljalo pozicioniranje i preklapanje sinhrotronskog zračenja sa zapreminom trapiranih jona i to naročito za uslove anijona proizvedenih elektrosprejom i trapiranih u trodimenzionom kvadrupolnom jonskom trapu. Na sinhrotronskim linijama DESIRS i DISCO rađeno je izučavanje reakcija u oblasti talasnih energija 4 do 20 eV, do je na liniji PELIADES

rađena spektroskopija u oblasti energija 200-500 eV, oko granica za jonizaciju unutrašnjih K ljuski ugljenika, azota i kiseonika.

Rad i rezultati kandidata u okviru ove problematike mogu se takođe podeliti u više celina.

c1) Razvoj nove aktivacione metode kod tandem masene spektrometrije zasnovane na apsorpciji VUV zračenja

Najvažniji radovi i patenti:

- A.R. Milosavljević, C. Nicolas, J.-F. Gil, F. Canon, M. Réfrégiers, L. Nahon, and A. Giuliani, “VUV synchrotron radiation: a new activation technique for tandem mass spectrometry”, *J. Synchrotron Rad.* 19(2) 174-178 (2012)
- Francis Canon, Aleksandar R. Milosavljević, Guillaume van der Rest, Matthieu Réfrégiers, Laurent Nahon, Pascale Sarni-Manchado, Véronique Cheynier and Alexandre Giuliani, “Photodissociation and Dissociative Photoionization Mass Spectrometry of Proteins and Noncovalent Protein–Ligand Complexes”, *Angew. Chem. Int. Ed.* 52(32) 8377-8381 (2013)
- Alexandre Giuliani, Aleksandar R. Milosavljević, Francis Canon, and Laurent Nahon, “Contribution of synchrotron radiation to photoactivation studies of biomolecular ions in the gas phase”, *Mass Spectrometry Reviews* 33, 424-441 (2014)
- Tandem mass spectrometer and tandem mass spectrometry method, Giuliani Alexandre [FR]; Refregiers Matthieu [FR]; Milosavljevic Aleksandar [RS]; Nahon Laurent [FR], [European patent office: EP2555225 \(A1\)](#) Published on 06.02.2013 [2013/06]

c2) VUV i X-ray akciona spektroskopija peptida i proteina zaobljenih u jonskoj zamci

Najvažniji radovi:

- Aleksandar R. Milosavljević, Christophe Nicolas, Joel Lemaire, Christophe Dehon, Roland Thissen, Jean-Marc Bizau, Matthieu Réfrégiers, Laurent Nahon and Alexandre Giuliani, “Photoionization of

a protein isolated *in vacuo*”, *Phys. Chem. Chem. Phys.* 13, 15432-15436 (2011)

- Aleksandar R. Milosavljević, Francis Canon, Christophe Nicolas, Catalin Miron, Laurent Nahon, and Alexandre Giuliani, “Gas-Phase Protein Inner-Shell Spectroscopy by Coupling an Ion Trap with a Soft X-ray Beamline”, *J. Phys. Chem. Lett.* 3, (9) 1191–1196 (2012).
- Alexandre Giuliani, Aleksandar R. Milosavljević, Konrad Hinsen, Francis Canon, Christophe Nicolas, Matthieu Réfrégiers, Laurent Nahon, “Structure and Charge-State Dependence of the Gas-Phase Ionization Energy of Proteins” *Angewandte Chemie International Edition* 51 (38) 9552-9556 (2012)
- Francis Canon, Aleksandar R. Milosavljević, Laurent Nahona and Alexandre Giuliani, “Action spectroscopy of a protonated peptide in the ultraviolet range”, *Phys. Chem. Chem. Phys.* (Advance article, online Jan. 14th, 2015), [doi:10.1039/c4cp04762a](https://doi.org/10.1039/c4cp04762a)

c3) VUV spektroskopija nanosolvatisanih biomolekula

Najvažniji radovi:

- Aleksandar R. Milosavljević, Viktor Z. Cerovski, Francis Canon, Laurent Nahon, and Alexandre Giuliani, “Nanosolvation-induced stabilization of protonated peptide dimer isolated in the gas phase”, *Angew. Chem. Int. Ed.* 52(28) 7286-7290 (2013) *Angewandte communications*
- Aleksandar R Milosavljevic , Viktor Z Cerovski , Francis Canon , Milos Lj Rankovic , Nikola Skoro , Laurent Nahon , and Alexandre Giuliani, “Energy-Dependent UV Photodissociation of Gas-Phase Adenosine Monophosphate Nucleotide Ions: The Role of a Single Solvent Molecule”, *J. Phys. Chem. Lett.* 5, 1994-1999 (2014).

ELEMENTI ZA KVALITATIVNU ANALIZU RADA KANDIDATA

U slučajevima kada se kvalitativni elementi izveštaja predstavljaju integralno za celu karijeru, elementi ostvareni nakon prethodnog izbora u zvanje su dati *kurzivom, podebljanim slovima (italic, bold)*. Posebno isticanje određenih elemenata izveštaja je dato **podebljanim slovima (bold)**.

1. Pokazatelji uspeha u naučnom radu

1.1. Nagrade i priznanja za naučni rad

- **Godišnja nagrada Instituta za fiziku za naučni rad za 2011. godinu.**

1.2. Uvodna predavanja na konferencijama i druga predavanja po pozivu

Kandidat je održao veći broj predavanja po pozivu na međunarodnim i domaćim konferencijama, kao i seminare po pozivu u inostranstvu:

Predavanja po pozivu na međunarodnim i domaćim konferencijama:

1. ***Photoionization of isolated charged proteins - the role of charge state and nanosolvation, 1st Meeting of the XLIC Working Group 2, "REACTIVITY OF HIGHLY EXCITED AND HIGHLY CHARGED MOLECULES" 24th - 27th February, Port-en-Bassin-Huppain, France (2014)***
2. ***Interaction of energetic photons with bare and nanosolvated biopolymers isolated in the gas phase, 2nd nano-IBCT Conference 2013 (Radiation Damage in Biomolecular Systems: Nanoscale Insights into Ion-Beam Cancer Therapy), Sopot, Poland 20-24 May (2013)***
3. ***Fotojonizacija proteina izolovanih u gasnom stanju: uticaj strukture i naelektrisanja makromolekula na prag za jonizaciju, 5. Radionica fotonike, Kopaonik, Srbija, 10-14 mart (2012)***
4. ***Transmission of low-energy electrons through Al₂O₃ nanocapillaries, Progress report at XXVII International Conference on Photonic, Electronic and Atomic Collisions – ICPEAC 2011, Belfast, UK (2011)***
5. ***Absolute differential cross sections for electron scattering from building blocks of biopolymers, Topical lecture at 5th Conference on Elementary Processes in Atomic Systems – CEPAS 2011, Belgrade, Serbia (2011)***
6. ***Aktivacija biopolimera izolovanih u jonskoj zamci pomoću VUV sinhrotronskog zračenja, Uvodno predavanje, 4. Radionica fotonike, Kopaonik, Srbija, 2-6 mart (2011).***
7. ***Gas-phase photoionization of a protein, Progress Report at 25th Symposium on Physics of Ionized Gases (SPIG'2010), Donji Milanovac, Serbia (2010).***
8. Energy and angular distributions of electrons transmitted through Al₂O₃ nanocapillaries - Invited oral presentation at The 2nd Symposium on Ion-Insulator-Interactions (S3I), 20th and 21st May 2009, Girona, Spain.

9. Low-Energy Electron Transport through High Aspect Ratio Al₂O₃ Nanocapillaries – Progress Report at 17th Symp.on Appl. of Plasma Processes (SAPP), January 17 – 22, (2009) Liptovský Ján, Slovakia.
10. Transmission of low-energy electrons through insulating nanocapillaries – invited short talk at ESF-FWF Conference in Partnership with LFUI, "Chemical Control with Electrons and Photons", 22-27 November, 2008, Obergurgl, Austria.
11. Guiding of low-energy electrons through insulating nanocapillaries – Progress report at the first ESF Electron Controlled Chemical Lithography meeting, 12th -16th March 2008, Lisbon, Portugal.
12. Electron interaction with deoxyribose analogue molecules in gaseous phase – Invited talk at Radiation Damage in Biomolecules Conference – RADAM 07, 19th – 22nd June, 2007, Dublin, Ireland, 2007.
13. Electron Interaction with DNA Deoxyribose Analogue Molecules - Progress Report at 23rd Symposium on Physics of Ionized Gases – SPIG'2006, National Park Kopaonik, Serbia, August 28 – September 1, 2006.
14. The consistent data set of angular and energy dependent DCS for elastic electron-argon scattering in the vicinity of critical points - Oral contribution: *Fifth Gen. Conf. of Balkan Physical Union BPU-5*, Vrnjicka banja, Serbia and Montenegro, August 25 – 29, 2003.
15. Measurements of angular distributions of electrons and ions in experiments with electron impact on atoms and molecules - Oral contribution: 2nd Congress of Metrologists of Yugoslavia, Novi Sad, 2000, CD 043, 8p. (in Serbian)

Seminari i predavanja po pozivu u inostranstvu:

1. ***“Physicochemical properties of gas-phase biopolymer ions probed by VUV and X-ray”, Invited seminar at the University of Innsbruck, Austria, 13. April (2015)***
2. ***“VUV and soft X-ray action spectroscopy of biopolymers stored in a linear ion trap”, Invited seminar at Universität Potsdam, Mathematisch-Naturwissenschaftliche Fakultät, Institut für Chemie/Physikalische Chemie (UPPC); 01.10.2014***
3. ***“VUV and soft X-Ray action spectroscopy of biopolymers stored in a linear ion trap” Invited seminar at the Istituto di Struttura della Materia, Rome, Italy; 18.09.2014***
4. ***“Nanosolvation of biomolecules probed by VUV action spectroscopy” Invited seminar at Synchrotron SOLEIL, France; 02.06.2014***
5. ***“Tandem mass spectrometry and action spectroscopy of electrosprayed biopolymers and nanosolvated biomolecules using synchrotron radiation” Invited seminar at The Open University, Milton Keynes, United Kingdom.***
6. ***“Action spectroscopy of large biopolymers isolated in vacuo”, Seminar at the University of Fribourg, Department of Chemistry, Switzerland; 28.06.2012.***
7. ***“Spectroscopy of a protein isolated in vacuo”, Invited seminar at The Molecular and cluster dynamics group, J. Heyrovský, Institute of Physical Chemistry, Academy of Sciences of the Czech Republic, Prague, Czech Republic; 17.03.2011.***

1.3. Članstva u odborima međunarodnih naučnih konferencija i odborima naučnih društava

Organizacija naučnih skupova:

- **Predsednik Organizacionog odbora naučnog skupa: „2nd Meeting of the COST XLIC Working Group 2“, koji će biti održan u Srbiji u aprilu 2015. godine.**
- **Ko-predsednik Organizacionog odbora naučnog skupa: 27th Summer School and International Symposium on the Physics of Ionized Gases (SPIG 2014) Belgrade, Serbia, August 26 -29, 2014.**
- **Sekretar Organizacionog odbora naučnog skupa: 5th Conference on Elementary Processes in Atomic Systems (CEPAS 2011) Belgrade, Serbia, June 21 - 25, 2011.**
- **Predsednik Organizacionog odbora naučnog skupa: 1st National Conference on Electronic, Atomic, Molecular and Photonic Physics, Zaječar, Serbia, 15-18 May, 2008.**
- **Ko-sekretar Organizacionog odbora naučnog skupa: 23rd Summer School and International Symposium on the Physics of Ionized Gases, Kopaonik, Serbia, August 28 – September 1, 2006.**

Članstvo u programskim odborima i naučnim komitetima naučnih skupova:

- **General Committee of International Conference on Photonic, Electronic and Atomic Collisions – ICPEAC:**
 - **XXIX International Conference on Photonic, Electronic, and Atomic Collisions (ICPEAC) to be held in Toledo, Spain on 22 –28 July 2015.**
 - **XXVIII International Conference on Photonic, Electronic and Atomic Collisions (XXVIII ICPEAC) was held by the Institute of Modern Physics, Chinese Academy of Sciences (IMP) on 24–30 July, 2013 in Lanzhou, China**
- **Scientific Committee of the Summer School and International Symposium of the Physics of Ionized Gases – SPIG**
 - **27th Summer School and International Symposium on the Physics of Ionized Gases (SPIG 2014) held in Belgrade, Serbia, August 26 -29, 2014 at the Serbian Academy of Sciences and Arts.**
 - **26th Summer School and International Symposium on the Physics of Ionized Gases, August, 27 - 31, 2012, Zrenjanin, Serbia**
- **Scientific Committee of the National Conference on Electronic, Atomic, Molecular and Photonic Physics – CEAMPP**
 - **3rd National Conference on Electronic, Atomic, Molecular and Photonic Physics (CEAMPP 2013), satellite conference of the IV International School and Conference on Photonics (Photonica'13). CEAMPP 2013 will take place in Belgrade, Serbia, on August 25, 2013 in the building of Faculty of Physics, University of Belgrade.**
 - **2nd National Conference on Electronic, Atomic, Molecular and Photonic Physics (CEAMPP 2011), satellite conference of the 5th Conference on Elementary Processes in Atomic Systems. CEAMPP 2011 will take place in Belgrade, Serbia, on June 21, 2011 in Serbian Academy of Sciences and Arts.**
 - **1st National Conference on Electronic, Atomic, Molecular and Photonic Physics, Zaječar, Serbia, 15-18 May, 2008.**

Članstvo u odborima naučnih društava i akcija:

- **Član Upravnog odbora Društva fizičara Srbije (2012-2014)**
- **Član Management Committee of ESF/COST Action CM1301 "Chemistry for Electron-Induced Nanofabrication (CELINA)" (2013-)**
- **Član Management Committee of ESF/COST Action MP1002 "Nano-scale insights in ion beam cancer therapy (Nano-IBCT)" (2010-2014).**

1.4. Članstva u uređivačkim odborima časopisa, uređivanje monografija, recenzije naučnih radova i projekata

Urednik časopisa, monografija i knjiga radova sa konferencija

1. **A. R. Milosavljevic, D. Maric and Z. Mijatovic**
J. Phys. Conf. Ser. 565 011001 (2014) - issue dedicated to SPIG 2014:
[doi:10.1088/1742-6596/565/1/011001](https://doi.org/10.1088/1742-6596/565/1/011001)
2. **A. R. Milosavljevic, D. Maric and Z. Mijatovic**
Proc. 27th Summer School and Int. Symp. on Physics of Ionized Gases – SPIG 2014, 26th - 29th August 2014, Belgrade, Serbia, Contributed Papers & Abstracts of Invited Lectures, Topical Invited Lectures, Progress Reports and Workshop Lectures, (IOP Belgrade and SASA, Belgrade, Serbia), i-xxv, pp.1-553 + iii.
<http://www.spig2014.ipb.ac.rs/>
3. **Aleksandar R. Milosavljević, Saša Dujko and Bratislav P. Marinković,**
Proc. 5th Conference on Elementary Processes in Atomic Systems (CEPAS2011) and the 2nd National Conference on Electronic, Atomic, Molecular and Photonic Physics (CEAMPP2011), 21st – 25th June 2011, Belgrade, Serbia, Contributed Papers & Abstracts of Invited Lectures, Belgrade: Institute of Physics, 2011 (Belgrade, Kragulj) pp.138.
ISBN: 978-86-82441-32-8, COBISS.SR-ID 184246028
4. *Facta Universitatis Series Physics, Chemistry and Technology Vol. 6 N^o 1, 2008, University of Niš*
Guest Eds. Aleksandar R. Milosavljević, Dragutin Šević and Bratislav P. Marinković,
ISSN 0354-4656
5. *Contributed Papers and Abstracts of Invited Lectures and Progress Reports of the 1st National Conference on Electronic, Atomic, Molecular and Photonic Physics (CEAMPP), May 15 – 18, 2008, Zaječar, Serbia.*
Eds. Aleksandar R. Milosavljević, Dragutin Šević and Bratislav P. Marinković,
(Institute of Physics, Belgrade, 2008) pp.66. ISBN 978-86-82441-22-9

Recenzije naučnih radova i projekata

- Kandidat je jedan od recenzenata u časopisu *European Physical Journal D (EPJ D)*, u izdanju Springer-Verlag.
- Kandidat je jedan od recenzenata u časopisu *International Journal of Mass Spectrometry*, u izdanju Elsevier.

- Kandidat je jedan od recenzenata u časopisu *Journal of Physical Chemistry*, u izdanju American Chemical Society.
- Kandidat je jedan od recenzenata u časopisu *Nuclear Instruments and Methods in Physics Research. Section B: Beam Interactions with Materials and Atoms*, u izdanju Elsevier.
- Kandidat je bio jedan od recenzenata projekata Portuguese Foundation for Science and Technology (FCT).
- Kandidat je bio jedan od recenzenata u časopisu *Journal of Physics Conference Series*, u izdanju IoP.
- Kandidat je bio jedan od recenzenata radova za konferencije:
 - SPIG 2012, Zrenjanin, Serbia
 - SPIG 2014, Belgrade, Serbia
 - CEAMPP 2008, Zaječar, Serbia
 - CEAMPP 2011, Belgrade, Serbia
 - CEAMPP 2013, Belgrade, Serbia
 - Annual Student Conference "Week of Doctoral Students 2013" held at Charles University from June 4 to June 7, 2013.

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

2.1. Doprinos razvoju nauke u zemlji

Dr Aleksandar Milosavljević je član Laboratorije za fiziku atomskih sudarnih procesa, i do sada je bio angažovan na više nacionalnih i međunarodnih projekata (OI 171020, 141011, 1424, 23024). Svojim dosadašnjim angažovanjem, naučnim radom i intenzivnom međunarodnom saradnjom značajno je doprineo razvoju nauke u zemlji i prepoznatljivosti Laboratorije za fiziku atomskih sudarnih procesa i Instituta za fiziku u svetu. Takođe je doprineo uključivanju istraživača iz Srbije u nove naučne tematike i projekte u svetu.

Dr Milosavljević je još tokom rada na doktorskoj tezi imao više studijskih boravaka u renomiranim laboratorijama u inostranstvu. Na osnovu stečenih znanja i u saradnji sa svojim mentorom i starijim kolegama iz Laboratorije za fiziku atomskih sudarnih procesa u Beogradu, koja ima veliku tradiciju u istraživanju procesa interakcije elektrona sa atomima i molekulima, dr Milosavljević je ključno doprineo proširivanju naučne tematike ove Laboratorije i njenom uključivanju u istraživanje procesa interakcije elektrona sa biomolekulima i generalno istraživanjima koja su od interesa za oblast biofizike, pre svega za razumevanje radijacionog oštećenja biološkog materijala. Ova tematika – istraživanje interakcije elektrona niskih energija sa biomolekulima ili gradivnim delovima biomolekula – je u to vreme upravo bila u ekspanziji, pre svega pod uticajem nekoliko značajnih radova (npr. B. Boudaiffa et al., *Science* **287**, 1658

(2000); B. D. Michael and P. O. Neil, Science **287**, 1603 (2000)). Tokom rada na svojoj tezi i zatim pod njegovim rukovodstvom eksperimentalnim sistemom UGRA u Laboratoriji za fiziku atomskih sudarnih procesa, razvijen je system i metodologija za merenje apsolutnih diferencijalnih preseka za rasejanje elektrona srednjih energija (40-300 eV) na malim bioloskim molekulima koje predstavljaju delove vecih biopolimera (DNK i proteina). Razvijena je metodologija koja omogućuje nezavisno merenje tri grupe podataka, preseka u funkciji uglarasejanja, energije i apsolutnih preseka u određenim tačkama korišćenjem metode relativnog protoka. Neki od ovih rezultata predstavljaju pionirska merenja za određene molekule i veoma su citirani. Rad na ovoj temi rezultirao je i većim brojem vrlo uspešnih naučnih kolaboracija sa kolegama iz inostranstva i inicirao veći broj bilateralnih naučnih projekata, poziva za predavanja na značajnim međunarodnim skupovima i seminarima.

Dr Milosavljević je takođe rukovodio pionirskim istraživanjima transmisije elektrona niskih i srednjih energija (1-300 eV) kroz izolatorske i provodne nano- i mirko-kapilare, koja su urađena u Laboratoriji za fiziku atomskih sudarnih procesa. Istraživanja transmisije naelektrisanih čestica kroz izolatorske kapilare je započeto radom Stolterfohta 2002 (PRL, 2002) i privuklu veliku pažnju naučne zajednice, kako zbog mogućnosti fundamentalnih istraživanja interakcije čestica sa površinama, tako i zbog mogućih primena za transport i manipulaciju naelektrisanih čestica na nanoskopskom i mikroskopskom novou. Međutim, praktično sva istraživanja do 2006 godine su rađena za jone. Prvi u svetu rezultati transmisije elektrona kroz izolatorske nanokapilare objavljeni su od strane Milosavljevica i koautora 2006. godine (što je i istaknuto u revijalnim radovima vezanim za ovu tematiku). Istraživanja vezana za transmisiju elektrona kroz nano i mikro kapilare takođe su doprinela formiranju značajnih međunarodnih saradnji, stranih i domaćih projekata i pozivima za seminare i predavanja.

Dr Milosavljević je nakon postdokorskog rada na sinhrotronskom postrojenju SOLEIL u Francuskoj nastavio da veoma aktivno koristi ovaj resurs, kroz dobijene naučne projekte i saradnju sa kolegama iz SOLEIL: dr Alexandre Giuliani, dr Matthieu Refregiers (DISCO, SOLEIL), Dr Gustavo Garcia, dr Laurent Nahon (DESIRS, SOLEIL), dr Chritophe Nicolas, dr Catalin Miron (PLEIADES, SOLEIL). Njegov angažman i prihvaćeni projekti su ključno doprineli uključivanju većeg broja saradnika iz Srbije u rad na sinhrotronu, kako iz različitih grupa sa Instututa za fiziku, tako i sa drugih institucija (npr. Institut Vinča i Fizički fakultet). Ovo je doprinelo drastičnom povećanju broja prihvaćenih projekata na sinhrotronu SOLEIL i broja korisnika sinhrotrona iz Srbije (videti listu projekata). Pristup ovako velikim mašinama omogućava dobijanje vrhunskih rezultata i pokretanje novih naučnih tematika. Na primer, nova metoda za analizu primarne structure proteina korišćenjem tandem masene spektroskopije sa VUV aktivacijom koja omogućuje ogromnu pokrivenost sekvence proteina; zatim prva spektroskopija velikih biopolimera (protein i DNK) izolovanih u gasnoj fazi; spektroskopija nanosolvatisanih biopolimera izolovanih u gasnoj fazi itd.

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

Dr Aleksandar Milosavljević je bio mentor za doktorsku tezu dr Jelene Maljković koja je odbranjena 2014. godine na Fizičkom fakultetu u Beogradu.

Trenutno rukovodi izradom doktorske teze kolege Miloša Rankovića na Fizičkom fakultetu u Beogradu. Tema ove doktorske teze je odobrena od strane Kolegijuma doktorskih studija Fizičkog fakulteta Univerziteta u Beogradu u martu 2015. godine.

Dr Milosavljević trenutno rukovodi izradom master rada kolegice Ive Bačić na Fizičkom fakultetu u Beogradu, koja je uključena na jedan od projekata na sinhrotronu SOLEIL u Francuskoj. Dr Milosavljević trenutno rukovodi i izradom dva diplomatska rada na Odseku za fiziku, Prirodnomatemičkog fakulteta, Univerziteta u Banja Luci.

2.3. Pedagoški rad

Kandidat je veoma aktivan u pedagoškom radu i formiranju naučnog podmlatka.

- Od 2012. godine dr Milosavljević je angažovan kao gostujući profesor na predmetu predmetu "Metode merenja" u okviru oblasti Atomska, molekulska i hemijska fizika, na Odseku za fiziku Prirodno matematičkog fakulteta, Univerziteta u Banja Luci, Republika Srpska, BiH.
- Od 2013. godine takođe je angažovan kao gostujući profesor na predmetu "Odabrani delovi eksperimentalne fizike" na master studijama u okviru oblasti Atomska, molekulska i hemijska fizika, na Odseku za fiziku Prirodno matematičkog fakulteta, Univerziteta u Banja Luci, Republika Srpska, BiH.
- Od 2012. godine je angažovan na doktorskim studijama na Fizičkom fakultetu Univerziteta u Beogradu, na predmetu "Eksperimentalne metode fizike elektron-atomskih sudara", u okviru uže naučne oblasti Fizika atoma i molekula.
- Pisao je tekstove za časopis "Mladi fizičar":
 - "100 godina kristalografije", Mladi fizicar 115, 14-17 (2014) tema broja.
 - "Fabrike fotona – sinhrotronski izvori zračenja", Mladi fizičar broj 109, 6 – 9 (2013) tema broja.
- Bio je organizator i predavač popularnih predavanja za profesore, nastavnike fizike i talentovane učenike: "Savremena istraživanja u fizici", održanih u Zaječaru 2011. i 2012. godine.
- Više puta je držao predavanja u istraživačkoj stanici Petnica.
- Rukovodio je letnjom praksom studenata na Institutu za fiziku u Beogradu:
 - Minja Čelikić, University of Vienna (2012)
 - Sara Lorić, Smith College, Northampton, USA (2013)

2.4. Međunarodna saradnja

Dr Aleksandar Milosavljević ima veoma aktivnu i razvijenu međunarodnu saradnju. On je učestvovao na velikom broju međunarodnih projekata i inicirao i razvio sa saradnju sa više stranih laboratorija i naučnih centara. Kandidat ima dugotrajnu saradnju sa istraživačima sa sinhrotron SOLEIL. Učestvovao je i rukovodio brojnim projektima na sinhrotronu SOLEIL.

Projekti međunarodne bilateralne saradnje:

Rukovodilac:

- **Serbia – Germany: “The study of DNA radiation damage on the molecular level by means of electron and photon action spectroscopy” (2014–2015)**
- **Serbia – Hungary: “Interactions of charge particles with single insulating capillaries” (2013–2015)**
- **Serbia – France: “Photon and electron spectroscopy of pure and nano-solvated biomolecules isolated in gas phase” (2012–2013)**
- **Serbia – Slovakia: “Excitation and fragmentation of small biomolecules” (2010–2011)**
- Serbia – Slovenija: “Electron induced fragmentation of organic and small hydrocarbon molecules” (2008-2009)

Učesnik:

- Serbia – France, CNRS / MSEP: “Semi-conductor functionalization processed by low-energy electron irradiation of condensed alcohols and amines” (2007-2008)
- Serbia – Slovenija: “Electron-molecule collisions – ions from dissociative processes” (2004-2005)
- Serbia – France, programme “Pavle Savic” EGIDE: “Organic functionalization of semiconductors” (2004-2005)

ESF COST projekti:

Predstavnik Srbije u Upravnom komitetu (management committee):

- **ESF/COST Action CM1301: “Chemistry for Electron-Induced Nanofabrication (CELINA)**
- **ESF/COST Action MP1002: “Nano-scale insights in ion beam cancer therapy (Nano-IBCT)”**

Učesnik:

- **ESF/COST Action ... : “XUV/X-ray light and fast ions for ultrafast chemistry (XLIC)**
- **ESF/COST Action CM0601: “Electron Controlled Chemical Lithography (ECCL)**
- **ESF/COST Action P9: “Radiation Damage in Biomolecular Systems (RADAM)**

Projekti na sinhrotronskim izvorima zračenja:

Rukovodilac:

2014

- *Inner-shell spectroscopy of nanosolvated protein ions isolated in gas phase, Proposal 20140023, Beamline PLEIADES, SOLEIL synchrotron, France*

2013

- *Nanosolvation-induced stabilization of biopolymers and fragile biomolecular complexes isolated in the gas, Proposal 20130388, Beamline DESIRS, SOLEIL synchrotron, France*
- *Influence of nanosolvation onto the ionization energy of multiply charged full proteins isolated in the gas phase, Proposal 20131031, Beamline DESIRS, SOLEIL synchrotron, France*
- *Inner-shell spectroscopy of protein ions isolated in gas phase: Near-edge X-ray ion yield spectra dependence on molecular charge state, Proposal 20130382, Beamline PLEIADES, SOLEIL synchrotron, France*

2012

- *Inner-shell spectroscopy of peptides and proteins polycations in the gas phase: Near-edge X-ray ion yield spectra dependence on molecular structure and charge state, Proposal 20120117, Beamline PLEIADES, SOLEIL synchrotron, France*
- *Photoionization of nanosolvated nucleotides and nucleoside triphosphates isolated in the gas phase, Proposal 20120874, Beamline DESIRS, SOLEIL synchrotron, France*

2011

- *Photoionization of nanosolvated biomolecular ions isolated in the gas phase, DESIRS beamline, SOLEIL*

2010

- *PLEIADES beamline, SOLEIL, France (2010), principal investigator "Evaluation of synchrotron radiation for protein sequencing 2: Inner shell excitation of peptide ions stored in ion trap"*

Učesnik:

2014

- *Is electron detachment an efficient relaxation mechanism for photoexcited nucleic acids anions?, Proposal 20141263, Beamline DESIRS, SOLEIL synchrotron, France (II part)*
- *VUV state-selected photoionization and fragmentation behaviour of amino acids attached to noble-metal nanoparticles studied in the gas phase, Proposal 20141244, Beamline DESIRS, SOLEIL synchrotron, France*
- *Sequence-specific VUV photofragmentation study of oligonucleotides isolated in the gas phase, Proposal 20141196, Beamline DISCO, SOLEIL synchrotron, France*

- *Absolute cross sections for sequence-specific VUV induced DNA strand break yields determined with DNA nanoarrays at different photon energies, Proposal 20141108, Beamline DISCO, SOLEIL synchrotron, France*

2013

- *Is electron detachment an efficient relaxation mechanism for photoexcited nucleic acids anions ?, Proposal 20130530, Beamline DESIRS, SOLEIL synchrotron, France*
- *Gas phase study on state-selected VUV ionization of biomolecules attached to noble metal nanoparticles, Proposal 20131037, Beamline DESIRS, SOLEIL synchrotron, France*
- *Determination of sequence-specific DNA strand break yields in dependence of the VUV photon energy using the DNA origami technique, Proposal 20131271, Beamline DISCO, SOLEIL synchrotron, France*
- *Study of the ionization and electron detachment induced in ion collision with protein poly-cations and poly-anions stored in an ion trap, Proposal CIMAP/IPAC2013/LB/272, Beamline ARIBE, GANIL, Caen, France*

2012

- *Localization of functionalized noble metal nanoparticles in microorganisms by synchrotron fluorescence UV imaging, Proposal 20120810, Beamline DISCO, SOLEIL synchrotron, France*
- *Anion Chemistry on Titan: Formation and destruction mechanisms of anions probed by ion-molecule reactions and interaction with photons II, Proposal 20120843, Beamline DESIRS, SOLEIL synchrotron, France*

2011

- *Molecular ions photoionisation by means of an FTICR Ion Trap and a merged beam experiment, DESIRS beamline, SOLEIL*
- *... DESIRS beamline, SOLEIL, France*

2010

- *Molecular ions photoionisation by means of an FTICR Ion Trap and a merged beam experiment, DESIRS beamline, SOLEIL, France (2010)*
- *Photoionization study of trapped protonated polypeptides in the gaz phase, DESIRS beamline, SOLEIL, France*

2009

- *Evaluation of synchrotron radiation for protein sequencing 1: VUV induced dissociation of peptide ions stored in ion trap, DESIRS beamline, SOLEIL, France (2009)*

Projekti na akceleratorima:

Učesnik:

- ***Study of the ionization and electron detachment induced in ion collision with protein poly-cations and poly-anions stored in an ion trap, Proposal CIMAP/IPAC2013/LB/272, Beamline ARIBE, GANIL, Caen, France (2015)***

Studijske posete inostranim naučnim institucijama – međunarodni grantovi:

Duže studijske posete (1-3 meseca):

- Laboratoire de Spectroscopie d'Electrons Diffuses, Universite de Liege, Belgium (2004), grant COST-STSM-P9-00204
- Institut für Ionenphysik, Leopold-Franzens Universität Innsbruck, Austria (2005), grant COST-STSM-P9-01419
- Department of Physics of Electronic Phenomena, Faculty of Applied Physics and Mathematics, Gdansk University of Technology, Gdańsk, Poland (2006), grant ESF Electron Induced Processing at the Molecular Level
- Department of Plasma Physics, Comenius University, Bratislava, Slovakia (2007), grant COST-STSM-P9-02813
- Laboratoire des Collisions Atomiques et Moléculaires, Orsay, France (2008), grant COST-STSM-CM0601-03754
- Jožef Stefan Institute, Ljubljana, Slovenia (2008), bilateral collaboration
- ***Department of Chemistry, University of Fribourg, Switzerland (2012), grant: The "International Short Visits" of the Swiss National Science Foundation (SNSF)***

Kraće studijske posete (10-30 dana):

- ***Synchrotron SOLEIL, Gif-sur-Yvette Cedex, France (2010), grant COST-STSM-CM0601-6005***
- ***Synchrotron SOLEIL, Gif-sur-Yvette Cedex, France (2012), grant COST-STSM-ECOST-STSM-MP1002-110412-016126***
- ***Synchrotron SOLEIL, Gif-sur-Yvette Cedex, France (2013), grant COST-STSM-ECOST-STSM-MP1002-140913-033300***
- ***Synchrotron SOLEIL, Gif-sur-Yvette Cedex, France (2014), grant COST-STSM-ECOST-STSM-CM1204-100214-038906***
- ***Synchrotron SOLEIL, Gif-sur-Yvette Cedex, France (2014), grant COST-STSM-ECOST-STSM-MP1002-310314-041044***

Inostrani projekti:

- "Synchrotron Radiation for tandem mass spectrometry – SR MS2" (2009- 2010), ANR projects (L'Agence nationale de la recherche, France)

Organizacija naučnih skupova:

Kandidat je bio ko-predsednik Organizacionog odbora SPIG 2014, sekretar Organizacionog odbora CEPAS 2011, predsednik Organizacionog odbora naučnog skupa: CEAMPP 2008 i kosekretar SPIG 2006. (detalji su dati u sekciji 1.3. ovog izveštaja)

3. Organizacija naučnog rada

3.1. Rukovođenje naučnim projektima, potprojektima i zadacima

Dr Aleksandar Milosavljević je rukovodio naučno-tehnološkim porojektom “Karakterizacija izolatorskih nanokapilara pomoću elektronskog mlaza”, finansiranim od strane MNTR RS, broj 23024, 2008. godina)

Dr Aleksandar Milosavljević je rukovodio temom “Izučavanje interakcija elektrona sa molekulima i biomolekulima – UGRA” na projektu OI 141011 “Elektronska i laserska spektrometrija i preseki za sudarne procese sa atomima, jonima, molekulima, metastabilima i biomolekulima”.

Kandidat trenutno rukovodi temama “Istraživanje interakcije elektrona sa biomolekulima i nanočesticama”, “Transmisija elektrona kroz nanokapilare” i “Interakcija sinhrotronskog zračenja sa biomolekulima”, na projektu “Fizika sudara i fotoprocesa u atomskim, (bio)molekulskim i nanodimenzionim sistemima”, #OI 171020 (2011-2014; produženo do 2015).

Kandidat je takođe rukovodio i trenutno rukovodi bilateralnim međunarodnim projektima (videti takođe sekciju 2.4): ***Serbia – Germany: “The study of DNA radiation damage on the molecular level by means of electron and photon action spectroscopy” (2014–2015), Serbia – Hungary: “Interactions of charge particles with single insulating capillaries” (2013–2015), Serbia – France: “Photon and electron spectroscopy of pure and nano-solvated biomolecules isolated in gas phase” (2012–2013), Serbia – Slovakia: “Excitation and fragmentation of small biomolecules” (2010–2011), Serbia – Slovenija: “Electron induced fragmentation of organic and small hydrocarbon molecules” (2008-2009).***

Kandidat je bio rukovodilac 8 projekata na sinhrotronskim izvorima zračenja u periodu od 2010. do 2014. godine (spisak projekata je dat u sekciji 2.4.).

Kandidat je bio ili je trenutno u Upravnim odborima, kao predstavnik Srbije, ESF COST projekata: ESF/COST Action CM1301: “Chemistry for Electron-Induced Nanofabrication (CELINA); ESF/COST Action MP1002: “Nano-scale insights in ion beam cancer therapy (Nano-IBCT)”.

Učešće na projektima Ministarstva nauke Republike Srbije:

- Experimental investigation of laser and electron interaction with atoms, metal vapours and molecules, 2001-2005 #OI 1424
- Electron and laser spectrometry and collisional cross sections for atoms, ions, molecules, metastables and biomolecules, 2006-2010 #OI 141011
- ***Physics of collisions and photo processes in atomic, (bio)molecular and nanosized systems "Fizika sudara i fotoprocena u atomskim, (bio)molekulskim i nanodimenzionim sistemima", 2011-2014 (extended till the end 2015) #OI 171020***

3.2. Rukovođenje naučnim institucijama

-

4. Kvalitet naučnih rezultata

Dr Aleksandar Milosavljević je do sada objavio ukupno 40 radova u međunarodnim časopisima sa ISI liste, od čega **30 kategorije M21** (vrhunski međunarodni časopisi), **9 kategorije M22** (istaknuti međunarodni časopisi) i **1 rad kategorije M23** (međunarodni časopisi). U časopisima nacionalnog značaja kandidat je objavio 1 rad kategorije M52. Dr Milosavljević je i koautor **1 međunarodnog patenta** koji je u fazi realizacije. Kandidat takođe ima 7 predavanja po pozivu na međunarodnim skupovima štampanih u celini (M31), 15 predavanja po pozivu na međunarodnim skupovima štampanih izvodu (M32), 30 saopštenja sa međunarodnih skupova štampanih u celini kategorije M33 i 38 saopštenja sa međunarodnih skupova kategorije M34 (štampanih u izvodima), a na nacionalnim skupovima ima 2 predavanja po pozivu štampana u celini (M61), 4 predavanja po pozivu štampana u izvodima (M62), 15 saopštenja kategorije M63 (štampanih u celini) i 2 saopštenja kategorije M64 (štampano u izvodu).

Nakon prethodnog izbora u zvanje, dr Aleksandar Milosavljević je objavio **23 rada** u međunarodnim časopisima sa ISI liste, od čega **19 kategorije M21**, **4 kategorije M22**, kao i **1 međunarodni patent** kategorije **M91** koji je u fazi realizacije. Takođe ima 3 predavanja po pozivu na međunarodnim skupovima štampanih u celini (M31), 7 predavanja po pozivu na međunarodnim skupovima štampanih izvodu (M32), 11 saopštenja sa međunarodnih skupova štampanih u celini kategorije M33 i 22 saopštenja sa međunarodnih skupova kategorije M34 (štampanih u izvodima), a na nacionalnim skupovima ima 2 predavanja po pozivu štampana u celini (M61), 3 predavanja po pozivu štampana u izvodima (M62), 5 saopštenja kategorije M63 (štampanih u celini) i 2 saopštenja kategorije M64 (štampano u izvodu). **Ukupan impakt faktor** radova publikovanih **nakon izbora** u prethodno zvanje je **104**.

4.1. Uticajnost kandidatovih naučnih radova

Najveći broj radova kandidata je objavljen u vrhunskim međunarodnim časopisima koji imaju veliki renome i citiranost unutar svojih naučnih kategorija, samim tim i veliku uticajnost. Dodatno, uticajnost naučnih radova kandidata se vidi i po njihovoj velikoj citiranosti, kako ranijih radova tako i radova objavljenih nakon poslednjeg izbora u zvanje, što pokazuje aktuelnost naučnog rada kandidata i interes drugih istraživača iz oblasti za njegov naučni rad. Citiranost radova je navedena u podsekciji 4.2.

Ovde treba posebno istaći određene radove kandidata u kojima su prezentovana pionirska istraživanja i rezultati, sa značajnim uticajem na naučnu zajednicu u datim oblastima istraživanja, što se ogleda u: velikoj citiranosti ovih radova, njihovom značajnom mestu u preglednim radovima iz date oblasti ili posebnom isticanju od strane naučnih izdavača ili naučnih centara.

- Reference (pre izbora) M21-7 72 citata, M22-3 47 citata, M21-1 38 citata (prema Web of Science), gde su dati rezultati za elastično rasejanje i disocijativni zahvat pri interakciji elektrona sa određenim molekulima koji predstavljaju delove DNK.
- Referenca (pre izbora) M21-6 59 citata (Web of Science), gde su dati prvi rezultati istraživanja procesa "vođenja" (*guiding*) elektrona kroz izolatorske nanokapilare. Takođe, rezultati ovog rada, kao i narednih radova kandidata vezani za ovu tematiku, su istaknuti u skorašnjem preglednom radu vezanom za ovu tematiku (C. Lemell et al, *Progress in Surface Science* 88 (2013) 237).
- Referenca (posle izbora) M21-5 (2013)
 - rad je selektovan za jednu od naslovnih strana časopisa *Angew. Chem. Int. Ed.* (inner cover page: <http://onlinelibrary.wiley.com/doi/10.1002/anie.201305979/abstract>) i selektovan od strane editora u "hot papers".
 - rezultati ovog rada su bili predmet zajedničkog saopštenja za štampu sinhrotrona SOLEIL, instituta INRA i CNRS, France.
(<http://www.synchrotron-soleil.fr/images/File/Presse/CP/2013/CP130723-Canon-astringence-A.pdf>)
 - rad je selektovan za "2013 synchrotron SOLEIL highlights"
- Referenca (posle izbora) M21-6 (2013): rad je selektovan za "2013 synchrotron SOLEIL highlights".
- Referenca (posle izbora) M21-7 (2012): rad je selektovan za "2012 synchrotron SOLEIL highlights".
- Referenca (posle izbora) M21-10 (2012): rad je selektovan za "2012 synchrotron SOLEIL highlights".
- Referenca (posle izbora) M21-11 (2012): rad je selektovan za "Wiley key articles in Mass Spectrometry".

Na kraju, uticajnost rada kandidata se vidi i po predavanjima po pozivu koje je održao u dosadašnjem periodu, kao i njegovo učešće u programskim i naučnim komitetima nekoliko renomiranih međunarodnih konferencija.

4.2. Pozitivna citiranost kandidatovih naučnih radova

Prema **Web of Science**, naučni radovi koje je dr Aleksandar Milosavljević objavio do sada su **citirani više od 400 puta** u međunarodnim časopisima, ne računajući autocitate. Njegov **h faktor** iznosi **13**.

4.3. Ugled i uticajnost publikacija u kojima su kandidati radovi objavljeni

Pokazatelji ugleda i uticajnosti publikacija u kojima su publikovani radovi kandidata mogu biti impakt faktor časopisa i rang časopisa u okviru odgovarajuće naučne kategorije. Dr Milosavljević je u periodu **nakon izbora u prethodno zvanje** publikovao **9** radova u časopisima koji su unutar **10%** u svojoj kategoriji. Od pomenutih radova, 3 su publikovana u časopisu *Angew. Chem. Int. Ed.* (**IF 13.734**), 1 rad u *Mass Spectrometry Reviews* (**IF 8.053**), 2 rada *J. Phys. Chem. Lett.* (**IF 6.687**), 4 rada u *Phys. Chem. Chem. Phys.* (**IF 4.198**). Ostali radovi kandidata su takođe publikovani u uglednim međunarodnim časopisima: *J. Chem. Phys.*, *Phys. Rev. A*, *J. Synchrotron Rad.*, *J. Phys. B: At. Mol. Opt. Phys.*, *Int. J. Mass. Spectrom.*, *Eur. Phys. J. D*, *Nucl. Instrum. Meth. B*.

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

Radovi kandidata imaju punu težinu u odnosu na broj koautora.

Važno je napomenuti da, od ukupnog broja publikovanih radova u međunarodnim časopisima (40), kandidat je **prvi autor na 22 rada, prvi ili drugi autor na 30 radova i odgovorni "corresponding" autor na 23 rada**.

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

Kod skoro svih publikacija kandidata je jasno izražen njegov doprinos radu i ostvarenim rezultatima, što se vidi i na osnovu liste autora (statistika je data u 4.4.). Kod većine publikacija ostvarenih na Insitutu za fiziku u Beogradu, kandidat je bio nosilac ili koordinator urađenih istraživanja. Kandidat je u dosadašnjem radu pokazao veliku samostalnost u istraživačkom radu i svojim idejama i rešenjima doprineo razvoju novih istraživačkih pravaca u Laboratoriji za atomske sudare vezanih za procese interakcije elektrona sa biomolekulima i vođenje elektrtona nano i mikro kapilarama. Tokom svog rada u naučnim institucijama u inostranstvu, kandidat je takođe pokazao samostalnost i imao značajnu ulogu u urađenim istraživanjima. Tokom studijskih boravaka u inostranim laboratorijama kandidat je samostalno radio na formulaciji problema i merenjima, što se vidi na osnovu priloženih potvrda rukovodilaca u izveštajima. Tokom postdokorskog rada na sinhrotronu SOLEIL i kasnijim projektima, kandidat je rukovodio razvojem nove aparature sa SR tandem masenu spektrometriju i učestvovao u konstrukciji eksperimentalne stanice DCSO. Stepem samostalnosti se ogleda i u dosadašnjem uspešnom rukovođenju izrade dokroskih teza.

ELEMENTI ZA KVANTITATIVNU OCENU NAUČNOG DOPRINOSA dr Aleksandra Milosavljevića za izbor u zvanje naučni savetnik

Ostvareni rezultati u periodu nakon prethodnog izbora u zvanje:

Kategorija	M bodova po radu	Broj radova	Ukupno M bodova
M21	8	19	152
M22	5	4	20
M31	3	3	9
M32	1.5	7	10,5
M33	1	12	12
M34	0.5	21	10,5
M61	1.5	2	3
M62	1	3	3
M63	0.5	5	2,5
M64	0.2	2	0,4

Poređenje sa minimalnim kvantitavnim uslovima za izbor u zvanje naučni savetnik:

Minimalan broj bodova		Ostvareno
Ukupno	65	222,9
M10+M20+M31+M32+M33+M41+M42 +M51	50	214,0
M11+M12+M21+M22+M23+M24+M31+M32	35	203,5

Radovi Aleksandra R. Milosavljevića posle prethodnog izbora

M20 Međunarodni časopisi:

M21 Radovi u vrhunskim međunarodnim časopisima:

1.

Francis Canon, Aleksandar R. Milosavljević, Laurent Nahona and Alexandre Giuliani,
“Action spectroscopy of a protonated peptide in the ultraviolet range”,
Phys. Chem. Chem. Phys. (Advance article, online Jan. 14th, 2015), [9 pp]

[doi:10.1039/c4cp04762a](https://doi.org/10.1039/c4cp04762a)

ISSN: 1463-9076

(M21=8, if=4.198 for 2013 [CP_33/136](#), [PAMC_5/33](#))

2.

A. R. Milosavljević, M. Lj. Ranković, D. Borka, J. B. Maljković, R. J. Bereczky, B. P. Marinković and K. Tőkési,

“Study of electron transmission through a platinum tube”,

Nucl. Instr. Meth. B (2015) [On-line 15 Dec. 2014].

[DOI: 10.1016/j.nimb.2014.11.087](https://doi.org/10.1016/j.nimb.2014.11.087)

ISSN: 0168-583X

(M21=8, if=1.266 for 2012: [II_28/57](#), [NS&T_7/34](#), [PAMC_25/34](#), [PN_12/21](#))

3.

Aleksandar R Milosavljevic , Viktor Z Cerovski , Francis Canon , Milos Lj Rankovic , Nikola Skoro , Laurent Nahon , and Alexandre Giuliani,

“Energy-Dependent UV Photodissociation of Gas-Phase Adenosine Monophosphate Nucleotide Ions: The Role of a Single Solvent Molecule”

J. Phys. Chem. Lett. 5, 1994-1999 (2014).

[DOI: 10.1021/jz500696b](https://doi.org/10.1021/jz500696b)

ISSN: 1948-7185

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4.

Alexandre Giuliani, Aleksandar R. Milosavljević, Francis Canon, and Laurent Nahon,

“Contribution of synchrotron radiation to photoactivation studies of biomolecular ions in the gas phase”,
Mass Spectrometry Reviews 33, 424-441 (2014).

[DOI: 10.1002/mas.21398](https://doi.org/10.1002/mas.21398)

ISSN: 0277-7037 (print), ISSN: 1098-2787 (online)

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5.

Francis Canon, Aleksandar R. Milosavljević, Guillaume van der Rest, Matthieu Réfrégiers, Laurent Nahon, Pascale Sarni-Manchado, Véronique Cheynier and Alexandre Giuliani,

“Photodissociation and Dissociative Photoionization Mass Spectrometry of Proteins and Noncovalent Protein–Ligand Complexes”,

Angew. Chem. Int. Ed. 52(32) 8377-8381 (2013) paper.

[DOI: 10.1002/anie.201304046](https://doi.org/10.1002/anie.201304046)

ISSN: 1433-7851

Selected for *Angew. Chem. Int. Ed.* 52(32) 8172 (2013). inside cover picture: [DOI: 10.1002/anie.201305979](https://doi.org/10.1002/anie.201305979)

Selected for *Angew. Chem. Int. Ed.* hot papers:
[http://onlinelibrary.wiley.com/journal/10.1002/\(ISSN\)1521-3773/homepage/2002_hotpaper.html](http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)1521-3773/homepage/2002_hotpaper.html)

INRA&SOLEIL&UnParisSud&CNRS Press release: <http://www.synchrotron-soleil.fr/images/File/Presse/CP/2013/CP130723-Canon-astringence-A.pdf>
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6.

Aleksandar R. Milosavljević, Viktor Z. Cerovski, Francis Canon, Laurent Nahon, and Alexandre Giuliani, “Nanosolvation-induced stabilization of protonated peptide dimer isolated in the gas phase”, *Angew. Chem. Int. Ed.* 52(28) 7286-7290 (2013) *Angewandte communications*.
ISSN: 1433-7851
DOI: [10.1002/anie.201301667](https://doi.org/10.1002/anie.201301667)
At Synchrotron SOLEIL News 2013: “[Three water molecules are enough to stabilize a dipeptide](#)”
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7.

Alexandre Giuliani, Aleksandar R. Milosavljević, Konrad Hinsen, Francis Canon, Christophe Nicolas, Matthieu Réfrégiers, Laurent Nahon, “Structure and Charge-State Dependence of the Gas-Phase Ionization Energy of Proteins” *Angewandte Chemie International Edition* 51 (38) 9552-9556 (2012)
[http://onlinelibrary.wiley.com/journal/10.1002/\(ISSN\)1521-3773/homepage/2002_preview.html](http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)1521-3773/homepage/2002_preview.html)
DOI: [10.1002/anie.201204435](https://doi.org/10.1002/anie.201204435)
<http://onlinelibrary.wiley.com/doi/10.1002/anie.201204435/abstract;jsessionid=6AB81D91CEA140018BF8EC8E990C2CFB.d02t04>
Online ISSN: 1521-3773
SOLEIL Synchrotron Actualités 2012: <http://www.synchrotron-soleil.fr/Soleil/ToutesActualites/2012/DESIRSphotoionisation>
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J. B. Maljković, F. Blanco, R. Čurik, G. García, B. P. Marinković, and A. R. Milosavljević, “Absolute cross sections for electron scattering from furan”, *J. Chem. Phys.* 137 064312 (2012) [10 pages].
<http://link.aip.org/link/?JCP/137/064312>
DOI: [10.1063/1.4742759](https://doi.org/10.1063/1.4742759)
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J. B. Maljković, F. Blanco, G. García, B. P. Marinković, and A. R. Milosavljević, “Absolute cross sections for elastic electron scattering from methylformamide”, *Phys. Rev. A* 85 042723 (2012).
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ISSN: 1050-2947
(M21=8, if=3.042 for 2012: [O_8/80](#), [PAMC_9/34](#))

10.

Aleksandar R. Milosavljević, Francis Canon, Christophe Nicolas, Catalin Miron, Laurent Nahon, and Alexandre Giuliani, “Gas-Phase Protein Inner-Shell Spectroscopy by Coupling an Ion Trap with a Soft X-ray Beamline”, *J. Phys. Chem. Lett.* 3, (9) 1191–1196 (2012).
<http://pubs.acs.org/doi/abs/10.1021/jz300324z>
[doi:10.1021/jz300324z](https://doi.org/10.1021/jz300324z)
ISSN: 1948-7185
(M21=8, if=6.585 for 2012: [PAMC_1/34](#), [NSNT_11/69](#), [MSMD_18/241](#), [CP_15/135](#))

11.

A.R. Milosavljević, C. Nicolas, J.-F. Gil, F. Canon, M. Réfrégiers, L. Nahon, and A. Giuliani,

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ISSN: 0909-0495
(M21=8, if=2.726 for 2011: [II_6/58](#), [O_10/77](#), [PA_23/125](#))

12.

A.R. Milosavljević, K. Schiessl, C. Lemell, K. Tőkési, M. Mátéfi-Tempfli, S. Mátéfi-Tempfli, B.P. Marinković, and J. Burgdörfer,

“Charging dynamics in electron transmission through Al₂O₃ capillaries”

Nucl. Instrum. Meth. B. 279 190-193 (2012).

Special issue: Proceedings of the *Fifth International Conference on Elementary Processes in Atomic Systems*, Belgrade, Serbia, 21-25 June 2011, Edited by Bratislav Marinković and Károly Tőkési.

[doi:10.1016/j.nimb.2011.10.034](https://doi.org/10.1016/j.nimb.2011.10.034)

ISSN: 0168-583X

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J. B. Maljković, F. Blanco, G. García, B. P. Marinković, and A. R. Milosavljević,

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<http://www.sciencedirect.com/science/article/pii/S0168583X11009682>

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ISSN: 0168-583X

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14.

A.R. Milosavljević, C. Nicolas, J.-F. Gil, F. Canon, M. Réfrégiers, L. Nahon, and A. Giuliani,

“Fast *in vacuo* photon shutter for synchrotron radiation quadrupole ion trap tandem mass spectrometry”,

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ISSN: 0168-583X

(M21=8, if=1.266 for 2012: [II_28/57](#), [NS&T_7/34](#), [PAMC_25/34](#), [PN_12/21](#))

15.

L. Amiaud, I. Martin, A. R. Milosavljević, Sh. Michaelson, A. Hoffman, R. Azria, A. Lafosse,

“Low-energy electron scattering on deuterated nanocrystalline diamond films – A model system for understanding the interplay between density-of-states, excitation mechanisms and surface versus lattice contributions”,

Phys. Chem. Chem. Phys. 13(24), 11495-11502 (2011).

<http://pubs.rsc.org/en/Content/ArticleLanding/2011/CP/c1cp20219g>

[doi:10.1039/C1CP20219G](https://doi.org/10.1039/C1CP20219G)

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(M21=8; if=4.116 for 2009 [CP_24/131](#), [PAMC_3/33](#))

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Aleksandar R. Milosavljević, Christophe Nicolas, Joel Lemaire, Christophe Dehon, Roland Thissen, Jean-Marc Bizau, Matthieu Réfrégiers, Laurent Nahon and Alexandre Giuliani,

“Photoionization of a protein isolated *in vacuo*”,
Phys. Chem. Chem. Phys. 13, 15432-15436 (2011).
<http://pubs.rsc.org/en/Content/ArticleLanding/2011/CP/c1cp21211g>
DOI: 10.1039/C1CP21211G
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17.
J M Bizau, C Blancard, M Coreno, D Cubaynes, C Dehon, N El Hassan, F Folkmann, M F Gharaibeh, A Giuliani, J Lemaire, A R Milosavljević, C Nicolas and R Thissen,
“Photoionization study of Kr⁺ and Xe⁺ ions with the combined use of a merged-beam set-up and an ion trap”,
J. Phys. B: At. Mol. Opt. Phys., 44, 055205 (2011) [8pp]
<http://iopscience.iop.org/0953-4075/44/5/055205/>
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(M21=8; if=1.910 for 2009 O_16/71, PAMC_15/33)

18.
F Ferreira da Silva, D Almeida, G Martins, A R Milosavljević, B P Marinković, S V Hoffmann, N J Mason, Y Nunes, G García and P Limão-Vieira,
“The electronic states of pyrimidine studied by VUV photoabsorption and electron energy-loss spectroscopy”,
Phys. Chem. Chem. Phys. 12 6717 – 6731 (2010)
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(M21=8; if=4.116 for 2009 CP_24/121, PAMC_3/33)

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A. R. Milosavljević, J. Kočišek, P. Papp, D. Kubala, B.P. Marinković, P. Mach, J. Urban and Š. Matejčík,
“Electron ionization of furanose alcohols”,
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doi:10.1063/1.3352422
ISSN: 0021-9606 (Paper) 1089-7690 (Online) American Institute of Physics
(M21=8; if= 3.149 for 2008 PAMC_5/31)

M22 Radovi u istaknutim međunarodnim časopisima:

1.
J. J. Jureta, A. R. Milosavljević and B. P. Marinković,
“High energy electron impact study on autoionizing region in helium by detection of ejected electrons”,
Int. J. Mass. Spectrom. 365-366, 114 – 120 (2014).
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DOI: 10.1016/j.ijms.2014.03.002
ISSN: 1387-3806
(M22=5 if=2.227 for 2013, PAMC_13/33, SPEC_17/44)

2.
R. Janečková, O. May, A.R. Milosavljević, and J. Fedor,
“Partial cross sections for dissociative electron attachment to tetrahydrofuran reveal a dynamics-driven rich fragmentation pattern”,
Int. J. Mass. Spectrom. 365-366, 163 – 168 (2014).
Dedicated to 70th birthday of Prof. Tilmann D. Märk.
doi: 10.1016/j.ijms.2014.01.017
ISSN: 1387-3806

(M22=5 if=2.227 for 2013, PAMC_13/33, SPEC_17/44)

3.

A. R. Milosavljević, V. Z. Cerovski, M. Lj. Ranković, F. Canon, L. Nahon, and A. Giuliani, “VUV photofragmentation of protonated leucine-enkephalin peptide dimer below ionization energy”, *Eur. Phys. J. D* 68(3), 68 (2014) [6 pp]

Topical Issue: Nano-scale Insights into Ion-beam Cancer Therapy

DOI: [10.1140/epjd/e2014-40826-y](https://doi.org/10.1140/epjd/e2014-40826-y)

ISSN: 1434-6060

(M22=5 if=1.513 for 2012, O_33/80, PAMC_22/34; if=1.398 for 2013, O_40/83, PAMC_22/33)

4.

Iztok Čadež, Sabina Markelj, Aleksandar R. Milosavljević, “Influence of hydrocarbons on vibrational excitation of H₂ molecules”, *Nuclear Engineering and Design* 241(4), 1267-1271 (2011) [published on-line 2010].

Special issue: International Conference on Nuclear Energy for New Europe 2009

DOI:[10.1016/j.nucengdes.2010.04.028](https://doi.org/10.1016/j.nucengdes.2010.04.028)

ISSN: 0029-5493

(M22=5; if=0.885 for 2010 NST_17/35)

M23 Radovi u međunarodnim časopisima:

-

M30 Međunarodne konferencije:

M31 Predavanje po pozivu sa međunarodnog skupa štampano u celini

1.

J M Bizau, D Cubaynes, M M Al Shorman, S Guilbaud, C Blancard, J Lemaire, R Thissen, A Giuliani, C Nicolas and A R Milosavljević,

“Photoionization of atomic and molecular positively charged ions”,

Proc. 26th Summer School and International Symposium on Physics of Ionized Gases SPIG, 27th – 30th Aug. 2012, Zrenjanin, Serbia, Book of Contributed Papers & Abstracts of Invited Lectures and Progress Reports, editors: M. Kuraica and Z. Mijatović, ISBN 978-86-7031-242-5, Invited Lecture, pp.6-7.

J. Phys. Conf. Ser. 399 012002 (2012) [6 pages]

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A. R. Milosavljević, J. Jureta, Gy. Víkor, Z. D. Pešić, D. Šević, M. Mátéfi-Tempfli, S. Mátéfi-Tempfli, and B. P. Marinković,

“Transmission of electrons through Al₂O₃ nanocapillaries”,

Proc. XXVII ICPEAC11 International Conference on Photonic, Electronic and Atomic Collisions, 27 July - 2 August 2011, Belfast, United Kingdom, Progress Report.

J. Phys. Conf. Ser. 388 012050 (2012) [7pp]

doi:[10.1088/1742-6596/388/1/012050](https://doi.org/10.1088/1742-6596/388/1/012050)

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ISSN: 1742-6588

Acknowledgements: MES Serbia (# 171020), and Prof. N. Stolterfoht.

(M31=3)

3.

Aleksandar R. Milosavljević, A. Giuliani, C. Nicolas, J-F Gil, J. Lemaire, M. Refregiers and L. Nahon, “Gas-phase photoionization of a protein”,

Proc. 25th Summer School and International Symposium on Physics of Ionized Gases SPIG, 30th Aug – 3rd

Sept. 2010, Donji Milanovac, Serbia, Progress Report, p. 26.
<http://webhost.rcub.bg.ac.rs/~spig2010/>
Journal of Physics: Conference Series, Volume 257 012006 (2010).
<http://iopscience.iop.org/1742-6596/257/1/012006>
doi: 10.1088/1742-6596/257/1/012006
ISSN: 1742-6588 Institute of Physics Publishing
(M31=3)

M32 Predavanje po pozivu sa međunarodnog skupa štampano u izvodu

1.
A.R.Milosavljević, C. Nicolas, F. Canon, C. Miron and A. Giuliani,
“Action spectroscopy of stored biomolecular ions in the soft X- ray range”,
Proc. 27th Summer School and Int. Symp. on Physics of Ionized Gases – SPIG 2014, 26th - 29th August 2014, Belgrade, Serbia, Contributed Papers & Abstracts of Invited Lectures, Topical Invited Lectures, Progress Reports and Workshop Lectures, Editors: Dragana Marić, Aleksandar R. Milosavljević and Zoran Mijatović, (IOP Belgrade and SASA, Belgrade, Serbia), Invited Workshop Lecture, p.533.
<http://www.spig2014.ipb.ac.rs/>
ISBN: 978-86-7762-600-6.
2.
A.R.Milosavljević, F. Canon, V. Z. Cerovski, M. Lj. Rankovic, C. Nicolas, C. Miron, L. Nahon, and A. Giuliani,
“Photoionization of isolated charged proteins - the role of charge state and nanosolvation”,
Proc. COST Action CM 1204 - Book of Abstract - 1st Meeting of the XLIC Working Group 2, "REACTIVITY OF HIGHLY EXCITED AND HIGHLY CHARGED MOLECULES" 24th - 27th February, 2014, Port-en-Bassin-Huppain, France, Oral presentation, p.43.
3.
A. R. Milosavljević, F. Canon, V. Z. Cerovski, C. Nicolas, M. Refregiers, L. Nahon and A. Giuliani,
“Interaction of energetic photons with bare and nanosolvated biopolymers isolated in the gas phase”,
Proc. 2nd nano-IBCT Conference 2013 (Radiation Damage in Biomolecular Systems: Nanoscale Insights into Ion-Beam Cancer Therapy), Sopot, Poland 20-24 May, 2013. Book of Abstracts, Invited Talk, p.58.
<http://nano-ibct2013.mif.pg.gda.pl/home>
ISSN: 1434-6079, Gdańsk University of Technology, Faculty of Applied Physics and Mathematics.
4.
A. R. Milosavljević, F. Blanco, J. B. Maljković, G. García, B. P. Marinković,
“Absolute differential cross sections for electron scattering from building blocks of biopolymers”,
Proc. 5th Conference on Elementary Processes in Atomic Systems (CEPAS2011) and the 2nd National Conference on Electronic, Atomic, Molecular and Photonic Physics (CEAMPP2011), 21st – 25th June 2011, Belgrade, Serbia, Contributed Papers & Abstracts of Invited Lectures, Editors: Aleksandar R. Milosavljević, Saša Dujko and Bratislav P. Marinković, Abstract of Invited Topical Lecture, p.28.
ISBN: 978-86-82441-32-8
Acknowledgements: MES Serbia (# 171020), Spanish MCIP (#FIS2009-10245), COST ECCL and COST nano-IBCT.
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5.
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M50 Nacionalni časopisi

M52 Radovi u časopisu nacionalnog značaja:

-

M60 Nacionalne konferencije:

M61 Predavanje po pozivu sa skupa nacionalnog značaja štampano u celini

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ISBN: 978-99955-21-21-9

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(M61=1,5)

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A. R. Milosavljević,
“Photoionization of proteins isolated in gaseous phase: Influence of the structure and charge of
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“Fotojonizacija proteina izolovanih u gasnoj fazi: uticaj strukture i naelektrisanja makromolekula na prag
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3.

Aleksandar R. Milosavljević,
“Aktivacija biopolimera izolovanih u jonskoj zamci pomoću VUV sinhrotronskog zračenja”,
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“4. Radionica fotonike (2011)”, Kopaonik, Srbija, 2-6 mart 2011. Pozivno predavanje.
“4th Workshops on Photonics (2011)”, Kopaonik, Serbia, 2-6 March 2011, Invited talk
<http://photonicsworkshop.ipb.ac.rs/>
http://photonicsworkshop.ipb.ac.rs/UserFiles/File/abstract/RF4a_Milosavljevic.pdf
Acknowledgements: grants: Agence Nationale de la Recherche Scientifique, France – project ANR-08-
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M63 Saopštenje sa nacionalnog skupa štampano u celini

1.

A. R. Milosavljević, R. J. Bereczky, J. B. Maljković, K. Tokesi, B. P. Marinković,
“Characterization of low-energy electrons produced upon electron passing through a single Teflon
capillary“
3rd National Conference on Electronic, Atomic, Molecular and Photonic Physics (CEAMPP2013) 25th
August 2013, Belgrade, Serbia, Contributed Papers & Abstracts of Invited Lectures and Progress
Reports, Editors: B.P. Marinković, G.B. Poparić, Contributed Papers pp.38-41.
ISBN: 978-86-84539-10-8
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M. Lj. Ranković, M. Čeklić and A. R. Milosavljević,
“Optimization of electron gun in continuous and pulsed operation modes“
3rd National Conference on Electronic, Atomic, Molecular and Photonic Physics (CEAMPP2013) 25th
August 2013, Belgrade, Serbia, Contributed Papers & Abstracts of Invited Lectures and Progress
Reports, Editors: B.P. Marinković, G.B. Poparić, Contributed Papers pp.34-37.
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3.

J. J. Jureta, A. R. Milosavljević and B. P. Marinković,
“Electron impact studies of autoionizing states and resonances in helium“
3rd National Conference on Electronic, Atomic, Molecular and Photonic Physics (CEAMPP2013) 25th
August 2013, Belgrade, Serbia, Contributed Papers & Abstracts of Invited Lectures and Progress
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M. Ranković, M. Čalikić and A. R. Milosavljević,
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A. R. Milosavljević, M. Ranković, V. Z. Cerovski, F. Kanon, L. Naon, A. Đulijani,
“Uticaj nanosolvatacije na stabilnost peptida izolovanog u gasnoj fazi”
XII Kongres fizičara Srbije, *Zbornik radova – usmena predavanja, predavanja po sekcijama, usmena i
poster saopštenja*, 28. april - 2. maj 2013. Vrnjačka banja, Srbija, Urednici: J. Labat, N. Cvetanović i I.
Dojčinović, Poster u sekciji: 4. *Atomska i molekulska fizika* str. 304-307.
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M64 Saopštenje sa nacionalnog skupa štampano u izvodu

1.

A. R. Milosavljević, C. Nicolas, J.-F. Gil, F. Canon, M. Réfrégiers, L. Nahon and A. Giuliani,
“Fast in-vacuo photon shutter for synchrotron radiation quadrupole ion trap tandem mass
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Acknowledgements: ANR (#BLAN08-1_348053), MES Serbia (# 171020), Synchrotron SOLEIL
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(registrovan kao EU patent, ali se čeka na zvanično zavodenje kao realizovanog patenta)

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Ostale publikacije:

[SOLEIL highlights 2013:](#)

“Synchrotron radiation – tandem mass spectrometry for proteomic and structural biology” pp.60-61.

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“Nanosolvation-induced stabilization of a protonated peptide dimer isolated in the gas phase” pp.86-87. [Booklet p.88](#) –Corresponding author A.R. Milosavljevic, IPB

[SOLEIL highlights 2012:](#)

“VUV photoionization of full protein in gas phase” pp.88-87/146

A.R. Milosavljevic,

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“Fabrike fotona – sinhrotronski izvori zračenja ”, - Tema broja

Mladi fizičar broj 109 6 – 9 (jun 2013).

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A. Giuliani^{1,2}, A. Milosavljevic^{1,3}, F. Canon¹, J-F. Gil¹, L. Nahon¹, M. Refregiers¹,

¹Synchrotron SOLEIL, Gif-sur-Yvette, France, ²UAR 1008 CEPIA INRA, Nantes, France, ³Institut de Physique, Université de Belgrade, Belgrade, Serbie

“Utilisation du rayonnement synchrotron pour l'activation d'ions en spectrométrie de masse tandem”

Seminari:

01.10.2014. Aleksandar R. Milosavljević, IPB

“VUV and soft X-ray action spectroscopy of biopolymers stored in a linear ion trap”,

Seminar at Universität Potsdam, Mathematisch-Naturwissenschaftliche Fakultät, Institut für Chemie/Physikalische Chemie (UPPC) under the bilateral project Serbia - DAAD 2014-2015: “*The study of DNA radiation damage on the molecular level*”

19.09.2014. Aleksandar R. Milosavljević, IPB

“Electron spectroscopy of biomolecules of relevance for radiation damage”

Seminar at the Istituto di Struttura della Materia, Rome under the project OI#171020 and the strategic project Serbia – Italia, 2014 – 2015 “Nanoscale insights in radiation damage”

18.09.2014. Aleksandar R. Milosavljević, IPB

“VUV and soft X-Ray action spectroscopy of biopolymers stored in a linear ion trap”

[Seminar](#) at the Istituto di Struttura della Materia, Rome under the project OI#171020 and the strategic project Serbia – Italia, 2014 – 2015 “Nanoscale insights in radiation damage”

02.06.2014. Aleksandar R. Milosavljević, IPB
“Nanosolvation of biomolecules probed by VUV action spectroscopy”
[Seminar at Synchrotron SOLEIL](#)

26.09.2013. Aleksandar Milosavljević, IPB
“Tandem mass spectrometry and action spectroscopy of electrosprayed biopolymers and nanosolvated biomolecules using synchrotron radiation”
Invited seminar at The Open University, Milton Keynes, United Kingdom.

April 2013. Aleksandar Milosavljević, IPB
“Fabrike fotona: sinhrotronski izvori zračenja”
Seminar za profesore povodom Republickog takmicenja iz fizike, Matematicka gimnazija.

Mart.2013. Aleksandar Milosavljević, IPB
“Sistem jedinica i granice merenja u fizici”
Seminar u Istrazivackoj stanici Petnici

19.03.2013. Aleksandar Milosavljević, IPB
“Aktivacija jona u zamci korišćenjem sinhrotronskog zračenja: Sekvenciranje proteina i spektroskopija biopolimera i nano-rastvorenih biopolimera izolovanih u gasnoj fazi”
[Seminar](#) of the project #171020 given at the IPB.

23.11.2012. Aleksandar R. Milosavljević, IPB
“Sistem jedinica i granice merenja u fizici”
Skup Savremena istraživanja u fizici, Zaječar, Srbija

05.07.2012. Aleksandar R. Milosavljević, IPB
“Ionization energy of gas phase proteins and its dependence on charge state”,
Seminar at the Atomic and molecular section of the SOLEIL synchrotron (within bilateral project MES RS # 680-00-132/2012-09/06)

28.06.2012. Aleksandar R. Milosavljević, IPB
“Action spectroscopy of large biopolymers isolated in vacuo”,
Seminar at the University of Fribourg, Department of Chemistry (group of Professor Michael Allan)

23.12.2011. Aleksandar Milosavljevic, IPB, University of Belgrade
“Transmission of Low Energy Electrons through Insulating Nanocapillaries”
“Transmisija elektrona niskih energija kroz izolatorske nanokapilare”
[Seminar](#) of the project #171020 at IPB

06.05.2011. Aleksandar Milosavljevic, IPB, University of Belgrade
“Electron and Photon Interactions with Biomolecules and Transmission of Electrons through Nanocapillaries”,
[Seminar](#) on the occasion of Annual Award for Scientific Achievements at the Institute of Physics University of Belgrade and celebration of 50th Anniversary of Institute’s Foundation

17.03.2011. Aleksandar Milosavljevic, IPB, University of Belgrade
“Spectroscopy of a protein isolated in vacuo”,
Seminar by invitation at The Molecular and cluster dynamics group, J. Heyrovský, Institute of Physical Chemistry, Academy of Sciences of the Czech Republic, Prague, Czech Republic.

16.03.2011. Aleksandar Milosavljevic, IPB, University of Belgrade
“Absolute differential cross sections for electron scattering from small biomolecules”,
Seminar (inv.) at Department of Experimental Physics, Comenius University in Bratislava, under bilateral project No.SKSRB-0011-09.

10.02.2011. Aleksandar Milosavljevic, IPB, University of Belgrade
“Transmission of low-energy electrons through insulating nanocapillaries”,
Seminar (inv.) at Atomic and molecular group, Synchrotron SOLEIL, France.

15.07.2010. Aleksandar Milosavljevic, IPB, University of Belgrade
“VUV Spectroscopy of Trapped Biopolymers”,
Seminar at Department of Experimental Physics, Comenius University in Bratislava, under bilateral
project No.SKSRB-0011-09.

Radovi Aleksandra R. Milosavljevića pre prethodnog izbora

M20 Međunarodni časopisi:

M21 Radovi u vrhunskim međunarodnim časopisima:

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ISSN 1050-2947 (print), 1094-1622 (online)
2. A. R. Milosavljević, J. J. Jureta, Gy. Viktor, Z. Pešić, D. Šević, S. Matefi-Tempfli, M. Matefi-Tempfli, and B. P. Marinković, “Low-energy electron transmission through high aspect ratio Al₂O₃ nanocapillaries”, *Europhysics Letters* **86** 23001 (2009). [6pp]
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M22 Radovi u istaknutim međunarodnim časopisima:

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Eur. Phys. J. D. **35** (2) 411-416 (2005).
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M23 Radovi u međunarodnim časopisima:

10. B. P. Marinković, A. R. Milosavljević, J. B. Maljković, D. Šević, B. A. Petruševski, D. Pavlović, D. M. Filipović, M. Terzić and V. Pejčev, “Optical and Electron Spectrometry of Molecules of Biological Interest”, *Acta Physica Polonica A* **112**(5) 1143-1148 (2007).
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ISSN: 0587-4246

M30 Međunarodne konferencije:

M31 Predavanje po pozivu sa međunarodnog skupa stampano u celini

1. “Electron interaction with DNA and deoxyribose analogues”,
A. R. Milosavljević, D. Šević and B. P. Marinković,
Proc. Conference on Radiation Damage in Biomolecular Systems (RADAM) EU/ESF COST Action P9, Invited Lecture, 19th - 22nd June 2007, The Royal College of Surgeons, Dublin, Ireland.
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2. “Cross section data for electron collisions in plasma physics”,
B. P. Marinković, V. Pejčev, D. M. Filipović, D. Šević, A. R. Milosavljević, S. Milisavljević, M. S. Rabasović, D. Pavlović and J. B. Maljković,
Proc. 5th EU-Japan Joint Symposium on Plasma Processing (Radicals and Non-Equilibrium Processes in Low-Temperature Plasmas), 7-9.03.2007 Belgrade, Serbia, Abstracts of Invited Lectures, Progress Reports and Contributed Papers, Eds. Z. Lj. Petrović, N. Mason, S. Hamaguchi, M. Radmilović-Radjenić, (Serbian Academy of Sciences and Arts, Institute of Physics: Belgrade, 2007) Invited Lecture p.I-12.
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3. “Electron Interaction with DNA Deoxyribose Analogue Molecules”,
Aleksandar R. Milosavljević,
Proc. 23rd Symposium on Physics of Ionized Gases – (SPIG’2006), 28 August – 1 September 2006, National Park Kopaonik, Serbia, in “*The Physics of Ionized Gases*” - Invited Lectures, Topical Invited Lectures and Progress Reports, Eds. Lj. Hadžievski, B. P. Marinković and N. Simonović, AIP Conference Proceedings Volume 876, Melville, New York, 2006. Progress Report, pp. 80-87.
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4. Low energy interactions with bio-molecules,
B. P. Marinković, D. M. Filipović, V. Pejčev, D. Šević, A. R. Milosavljević, D. Pavlović, S. Milisavljević, P. Kolarž and M. Pardjovska,

Proc. XXIV ICPEAC Rosario, Argentina, Progress Report,
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M32 Predavanje po pozivu sa medjunarodnog skupa stampano u izvodu

1. A. R. Milosavljević, J. Jureta, Gy. Víkor, Z. D. Pešić, D. Šević, S. Mátéfi-Tempfli, M. Mátéfi-Tempfli and B. P. Marinković

“Energy and angular distributions of electrons transmitted through Al₂O₃ nanocapillaries”,
Invited oral presentation at The 2nd Symposium on Ion-Insulator-Interactions (S3I), 20th and 21st May 2009, Girona, Spain.

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“Low-Energy Electron Transport Through High Aspect Ratio Al₂O₃ Nanocapillaries”,
Proc. 17th Symp. on Appl. of Plasma Processes (SAPP), January 17 – 22, (2009) Liptovský Ján, Slovakia, Book of Contributed Papers, Eds. P. Papp, J. Országh, J. Matúška, Š. Matejčík, Progress Report, PR10-p.103.

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8. Magnetic Field generator for experimental Apparatus SELE,
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Proc. XI Congress of Physicists of Serbia and Montenegro, Petrovac na Moru, 3 – 5 June 2004, Eds. Nikola Konjevic, Borko Vujcic and Predrag Miranovic, CD Contribution [s2_13] pp. 2.79 – 82 (in Serbian)

9. Measurements of angular distributions of electrons and ions in experiments with electron impact on atoms and molecules,
A. Milosavljevic, B.P. Marinkovic, D. Sevic, S. Madzunkov, I. Cadez and M. Kurepa,
Proc. 2nd Congress of Metrologists of Yugoslavia, Novi Sad, 2000, CD 043, 8p. (in Serbian)

10. Optimization of double cylindrical mirror analyzer,
A. Milosavljevic, B.P. Marinkovic, I. Cadez and M. Kurepa,
Proc. 10th Congress of Yugoslav Physicists, Vrnjaska banja, March 2000
Eds. B.Milic and D.Markusev, pp.103-106 (in Serbian)

M64 Saopštenje sa nacionalnog skupa štampano u izvodu

M71 Odbranjena doktorska disertacija

Interakcija elektrona sa molekulima analognim dezoksiribozi u DNK lancu,
Doktorska disertacija, Univerzitet u Beogradu, Fizički fakultet

M72 Odbranjen magistarski rad

Kritične tačke u elastičnom rasejanju elektrona na atomu argona,
Magistarski rad, Univerzitet u Beogradu, Fizički fakultet

Seminari:

a)
21.11.2008. Aleksandar Milosavljević,
“Crossed beam electron spectrometers applied to investigate transmission of low-energy electrons through insulating nanocapillaries”,
Seminar at The Institute for Theoretical Physics, Vienna University of Technology

b)
24.02.2006. Aleksandar Milosavljevic, Institute of Physics, Belgrade
“Electron interaction with DNA deoxyribose analogue molecules”
Seminar at The Technical University Gdansk, Poland



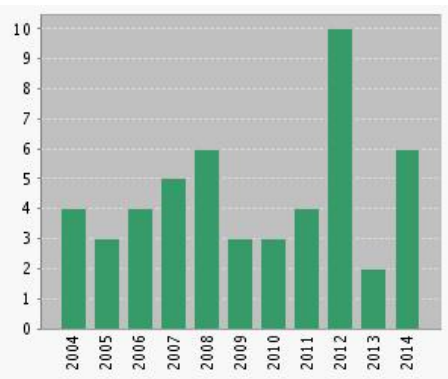
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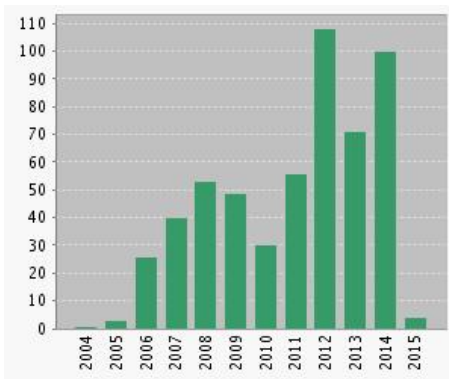
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<input type="checkbox"/> 1. Dissociative electron attachment to furan, tetrahydrofuran, and fructose By: Sulzer, Philipp; Ptasinska, Sylwia; Zappa, Fabio; et al. JOURNAL OF CHEMICAL PHYSICS Volume: 125 Issue: 4 Article Number: 044304 Published: JUL 28 2006	13	9	6	7	1	73	7.30
<input type="checkbox"/> 2. Guiding of low-energy electrons by highly ordered Al2O3 nanocapillaries By: Milosavljevic, A. R.; Viktor, Gy.; Pesic, Z. D.; et al. PHYSICAL REVIEW A Volume: 75 Issue: 3 Article Number: 030901 Published: MAR 2007	13	12	11	0	0	61	6.78
<input type="checkbox"/> 3. Elastic scattering of electrons from tetrahydrofuran molecule By: Milosavljevic, AR; Giuliani, A; Sevic, D; et al. EUROPEAN PHYSICAL JOURNAL D Volume: 35 Issue: 2 Pages: 411-416 Published: AUG 2005	1	6	2	7	0	47	4.36
<input type="checkbox"/> 4. Absolute differential cross sections for elastic scattering of electrons from pyrimidine By: Maljkovic, J. B.; Milosavljevic, A. R.; Blanco, F.; et al. PHYSICAL REVIEW A Volume: 79 Issue: 5 Article Number: 052706 Published: MAY 2009	7	11	11	7	0	39	5.57

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|--------------------------|-----|---|---|---|---|---|---|----|------|
| <input type="checkbox"/> | 5. | Differential cross sections for low-energy elastic electron scattering from tetrahydrofuran in the angular range 20 degrees-180 degrees | 5 | 6 | 4 | 5 | 0 | 38 | 4.22 |
| | | By: Dampc, Marcin; Milosavljevic, Aleksandar R.; Linert, Ireneusz; et al.
PHYSICAL REVIEW A Volume: 75 Issue: 4 Article Number: 042710
Published: APR 2007 | | | | | | | |
| <input type="checkbox"/> | 6. | Elastic scattering of electrons from tetrahydrofurfuryl alcohol | 1 | 3 | 1 | 6 | 0 | 25 | 2.50 |
| | | By: Milosavljevic, A. R.; Blanco, F.; Sevic, D.; et al.
Conference: International Workshop on Ultracold Plasma and Rydberg Systems (Ultracold PARYS) Location: Gif sur Yvette, FRANCE Date: FEB 14-MAR 16, 2005
EUROPEAN PHYSICAL JOURNAL D Volume: 40 Issue: 1 Pages: 107-114
Published: OCT 2006 | | | | | | | |
| <input type="checkbox"/> | 7. | Electronic states of neutral and ionized tetrahydrofuran studied by VUV spectroscopy and ab initio calculations | 3 | 3 | 4 | 4 | 1 | 24 | 3.43 |
| | | By: Giuliani, A.; Limao-Vieira, P.; Dufflot, D.; et al.
EUROPEAN PHYSICAL JOURNAL D Volume: 51 Issue: 1 Pages: 97-108
Published: JAN 2009 | | | | | | | |
| <input type="checkbox"/> | 8. | Photoionization of a protein isolated in vacuo | 2 | 9 | 4 | 7 | 1 | 23 | 4.60 |
| | | By: Milosavljevic, Aleksandar R.; Nicolas, Christophe; Lemaire, Joel; et al.
PHYSICAL CHEMISTRY CHEMICAL PHYSICS Volume: 13 Issue: 34
Pages: 15432-15436 Published: 2011 | | | | | | | |
| <input type="checkbox"/> | 9. | Vibrational excitation of tetrahydrofuran by electron impact in the low energy range | 4 | 2 | 3 | 3 | 0 | 20 | 2.22 |
| | | By: Dampc, Marcin; Linert, Ireneusz; Milosavljevic, Aleksandar R.; et al.
CHEMICAL PHYSICS LETTERS Volume: 443 Issue: 1-3 Pages: 17-21
Published: JUL 27 2007 | | | | | | | |
| <input type="checkbox"/> | 10. | Experimental determination of the differential cross-section surface for elastic electron-atom (molecule) scattering | 0 | 4 | 0 | 1 | 0 | 20 | 2.00 |
| | | By: Milosavljevic, AR; Madzunkov, S; Sevic, D; et al.
JOURNAL OF PHYSICS B-ATOMIC MOLECULAR AND OPTICAL PHYSICS Volume: 39 Issue: 3 Pages: 609-623 Published: FEB 14 2006 | | | | | | | |

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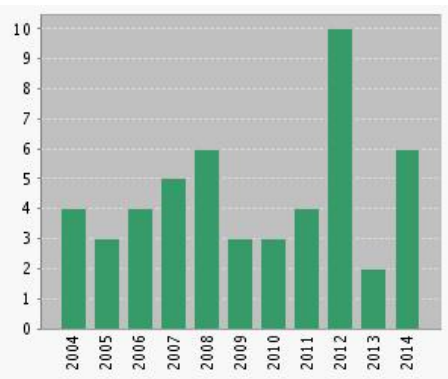
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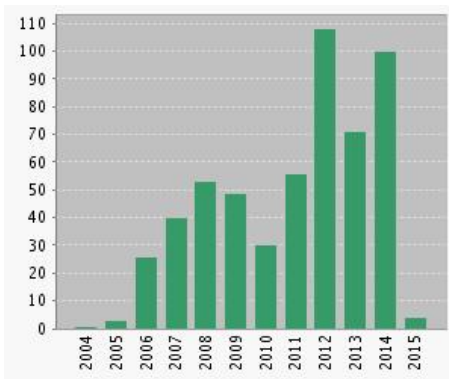
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<input type="checkbox"/> 11. Photoionization study of Kr+ and Xe+ ions with the combined use of a merged-beam set-up and an ion trap By: Bizau, J. M.; Blancard, C.; Coreno, M.; et al. JOURNAL OF PHYSICS B-ATOMIC MOLECULAR AND OPTICAL PHYSICS Volume: 44 Issue: 5 Article Number: 055205 Published: MAR 14 2011	1	8	2	7	0	18	3.60
<input type="checkbox"/> 12. VUV synchrotron radiation: a new activation technique for tandem mass spectrometry By: Milosavljevic, Aleksandar R.; Nicolas, Christophe; Gil, Jean-Francois; et al. JOURNAL OF SYNCHROTRON RADIATION Volume: 19 Pages: 174-178 Part: 2 Published: MAR 2012	0	4	6	6	0	16	4.00
<input type="checkbox"/> 13. The electronic states of pyrimidine studied by VUV photoabsorption and electron energy-loss spectroscopy By: da Silva, F. Ferreira; Almeida, D.; Martins, G.; et al. PHYSICAL CHEMISTRY CHEMICAL PHYSICS Volume: 12 Issue: 25 Pages: 6717-6731 Published: 2010	2	8	2	3	0	15	2.50
<input type="checkbox"/> 14. Absolute cross sections for elastic electron scattering from 3-hydroxytetrahydrofuran By: Milosavljevic, A. R.; Blanco, F.; Maljkovic, J. B.; et al.	0	5	2	2	0	13	1.62

NEW JOURNAL OF PHYSICS Volume: 10 Article Number: 103005
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- | | | | | | | | | | |
|---|-----|---|---|---|---|---|---|----|------|
| <input type="checkbox"/> | 15. | Gas-Phase Protein Inner-Shell Spectroscopy by Coupling an Ion Trap with a Soft X-ray Beamline | 0 | 2 | 4 | 6 | 0 | 12 | 3.00 |
| By: Milosavljevic, Aleksandar R.; Canon, Francis; Nicolas, Christophe; et al. | | | | | | | | | |
| JOURNAL OF PHYSICAL CHEMISTRY LETTERS Volume: 3 Issue: 9 | | | | | | | | | |
| Pages: 1191-1196 Published: MAY 3 2012 | | | | | | | | | |
| <input type="checkbox"/> | 16. | Elastic scattering of electrons by krypton in the energy range 20-260 eV | 0 | 0 | 0 | 0 | 0 | 12 | 1.09 |
| By: Milosavljevic, AR; Kelemen, VI; Filipovic, DM; et al. | | | | | | | | | |
| JOURNAL OF PHYSICS B-ATOMIC MOLECULAR AND OPTICAL PHYSICS Volume: 38 Issue: 13 Pages: 2195-2210 Published: JUL 14 2005 | | | | | | | | | |
| <input type="checkbox"/> | 17. | Electron impact ionization of furanose alcohols | 3 | 4 | 1 | 3 | 0 | 11 | 1.83 |
| By: Milosavljevic, A. R.; Kocisek, J.; Papp, P.; et al. | | | | | | | | | |
| JOURNAL OF CHEMICAL PHYSICS Volume: 132 Issue: 10 Article Number: 104308 Published: MAR 14 2010 | | | | | | | | | |
| <input type="checkbox"/> | 18. | Fast in vacuo photon shutter for synchrotron radiation quadrupole ion trap tandem mass spectrometry | 0 | 2 | 2 | 3 | 0 | 7 | 1.75 |
| By: Milosavljevic, A. R.; Nicolas, C.; Gil, J. -F.; et al. | | | | | | | | | |
| Conference: 5th International Conference on Elementary Processes in Atomic Systems (CEPAS) Location: Belgrade, SERBIA Date: JUN 21-25, 2011 | | | | | | | | | |
| Sponsor(s): Univ Belgrade, Inst Phys; Serbian Acad Sci & Arts (SASA); Republ Serbia, Minist Educ & Sci; Serbian Phys Soc; Serv Cooperat Dact Culturelle Ambassade France Serbie; Osterreichisches Kulturforum Belgrad | | | | | | | | | |
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| Pages: 34-36 Published: MAY 15 2012 | | | | | | | | | |
| <input type="checkbox"/> | 19. | Structure and Charge-State Dependence of the Gas-Phase Ionization Energy of Proteins | 0 | 0 | 2 | 4 | 0 | 6 | 1.50 |
| By: Giuliani, Alexandre; Milosavljevic, Aleksandar R.; Hinsien, Konrad; et al. | | | | | | | | | |
| ANGEWANDTE CHEMIE-INTERNATIONAL EDITION Volume: 51 Issue: 38 | | | | | | | | | |
| Pages: 9552-9556 Published: 2012 | | | | | | | | | |
| <input type="checkbox"/> | 20. | Low-energy electron transmission through high aspect ratio Al₂O₃ nanocapillaries | 1 | 2 | 1 | 0 | 0 | 6 | 0.86 |
| By: Milosavljevic, A. R.; Jureta, J.; Viktor, Gy.; et al. | | | | | | | | | |
| EPL Volume: 86 Issue: 2 Article Number: 23001 Published: APR 2009 | | | | | | | | | |

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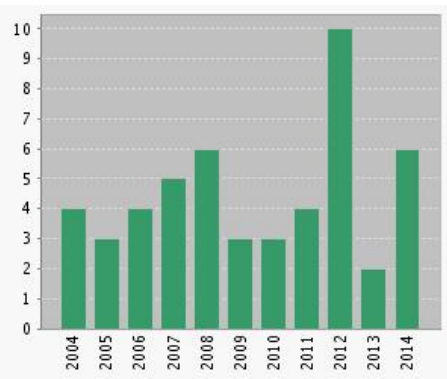
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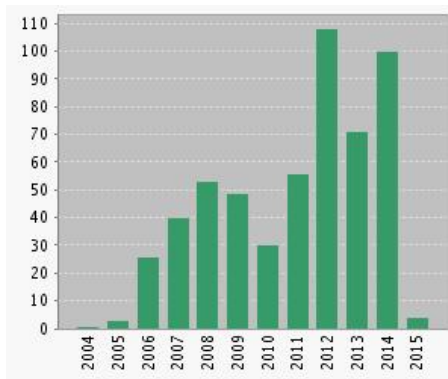
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<input type="checkbox"/> 21. The high-energy critical minimum in elastic electron scattering by argon By: Milosavljevic, AR; Telega, S; Sevic, D; et al. EUROPEAN PHYSICAL JOURNAL D Volume: 29 Issue: 3 Pages: 329-336 Published: JUN 2004	0	0	0	0	0	6	0.50
<input type="checkbox"/> 22. Photodissociation and Dissociative Photoionization Mass Spectrometry of Proteins and Noncovalent Protein-Ligand Complexes By: Canon, Francis; Milosavljevic, Aleksandar R.; van der Rest, Guillaume; et al. ANGEWANDTE CHEMIE-INTERNATIONAL EDITION Volume: 52 Issue: 32 Pages: 8377-8381 Published: AUG 5 2013	0	0	0	5	0	5	1.67
<input type="checkbox"/> 23. Absolute cross sections for elastic electron scattering from methylformamide By: Maljkovic, J. B.; Blanco, F.; Garcia, G.; et al. PHYSICAL REVIEW A Volume: 85 Issue: 4 Article Number: 042723 Published: APR 30 2012	0	1	0	4	0	5	1.25
<input type="checkbox"/> 24. Critical minimum in elastic electron scattering by krypton By: Milosavljevic, AR; Sevic, D; Marinkovic, BP							

	JOURNAL OF PHYSICS B-ATOMIC MOLECULAR AND OPTICAL PHYSICS Volume: 37 Issue: 24 Pages: 4861-4868 Article Number: PII S0953-4075(04)88134-3 Published: DEC 28 2004	0	0	0	0	0	5	0.42
<input type="checkbox"/>	25. Elastic electron scattering from formamide molecule By: Maljkovic, J. B.; Blanco, F.; Garcia, G.; et al. Conference: 5th International Conference on Elementary Processes in Atomic Systems (CEPAS) Location: Belgrade, SERBIA Date: JUN 21-25, 2011 Sponsor(s): Univ Belgrade, Inst Phys; Serbian Acad Sci & Arts (SASA); Republ Serbia, Minist Educ & Sci; Serbian Phys Soc; Serv Cooperat dact culturelle Ambassade France Serbie; Osterreichisches Kulturforum Belgrad NUCLEAR INSTRUMENTS & METHODS IN PHYSICS RESEARCH SECTION B-BEAM INTERACTIONS WITH MATERIALS AND ATOMS Volume: 279 Pages: 124-127 Published: MAY 15 2012	0	2	0	2	0	4	1.00
<input type="checkbox"/>	26. Electron interaction with deoxyribose analogue molecules in gaseous phase By: Milosavljevic, A. R.; Sevic, D.; Marinkovic, B. P. Edited by: McGuigan, KG Conference: COST Action P9 Meeting on Radiation Damage in Biomolecular Systems Location: Royal Coll Surg, Dublin, IRELAND Date: JUL 19-22, 2007 Sponsor(s): European Sci Fdn; Sci Fdn Ireland; Millipore; AGB; Mason Technol; Dublin Convent Bureau; Cost Act P9 RADIATION DAMAGE IN BIOMOLECULAR SYSTEMS Book Series: Journal of Physics Conference Series Volume: 101 Article Number: 012014 Published: 2008	0	1	0	2	0	4	0.50
<input type="checkbox"/>	27. High resolution electron imaging system for sub-micron sized metastable atom beams produced by Stern-Gerlach interferometry By: Milosavljevic, AR; Bocvarski, V; Jureta, J; et al. MEASUREMENT SCIENCE & TECHNOLOGY Volume: 16 Issue: 10 Pages: 1997-2004 Published: OCT 2005	0	0	0	0	0	4	0.36
<input type="checkbox"/>	28. Elastic electron scattering by argon in the vicinity of the high-energy critical minimum By: Milosavljevic, AR; Telega, S; Sevic, D; et al. RADIATION PHYSICS AND CHEMISTRY Volume: 70 Issue: 6 Pages: 669- 676 Published: AUG 2004	0	0	1	0	0	4	0.33
<input type="checkbox"/>	29. Absolute cross sections for electron scattering from furan By: Maljkovic, J. B.; Blanco, F.; Curik, R.; et al. JOURNAL OF CHEMICAL PHYSICS Volume: 137 Issue: 6 Article Number: 064312 Published: AUG 14 2012	0	1	1	1	0	3	0.75
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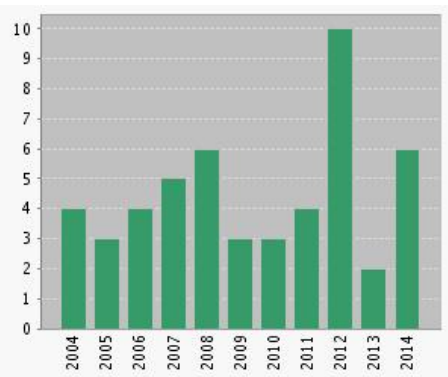
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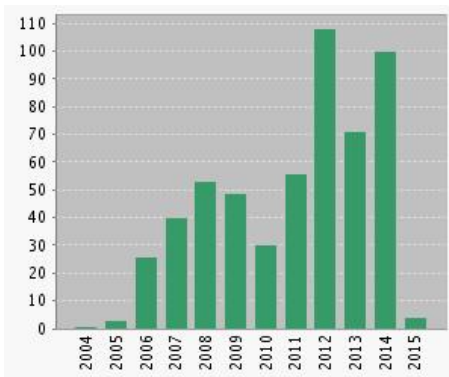
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<input type="checkbox"/> 31. Nanosolvation-Induced Stabilization of a Protonated Peptide Dimer Isolated in the Gas Phase By: Milosavljevic, Aleksandar R.; Cerovski, Viktor Z.; Canon, Francis; et al. ANGEWANDTE CHEMIE-INTERNATIONAL EDITION Volume: 52 Issue: 28 Pages: 7286-7290 Published: JUL 8 2013	0	0	0	2	0	2	0.67
<input type="checkbox"/> 32. Charging dynamics in electron transmission through Al2O3 capillaries By: Milosavljevic, A. R.; Schiessl, K.; Lemell, C.; et al. Conference: 5th International Conference on Elementary Processes in Atomic Systems (CEPAS) Location: Belgrade, SERBIA Date: JUN 21-25, 2011 Sponsor(s): Univ Belgrade, Inst Phys; Serbian Acad Sci & Arts (SASA); Republ Serbia, Minist Educ & Sci; Serbian Phys Soc; Serv Cooperat dact culturelle Ambassade France Serbie; Osterreichisches Kulturforum Belgrad NUCLEAR INSTRUMENTS & METHODS IN PHYSICS RESEARCH SECTION B-BEAM INTERACTIONS WITH MATERIALS AND ATOMS Volume: 279 Pages: 190-193 Published: MAY 15 2012	0	1	1	0	0	2	0.50
<input type="checkbox"/> 33. Low-energy electron scattering on deuterated nanocrystalline diamond films-a model system for understanding the interplay between density-of- states, excitation mechanisms and surface versus lattice contributions	0	0	0	2	0	2	0.40

By: Amiaud, L.; Martin, I.; Milosavljevic, A. R.; et al.
 PHYSICAL CHEMISTRY CHEMICAL PHYSICS Volume: 13 Issue: 24
 Pages: 11495-11502 Published: 2011

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|--------------------------|---|---|---|---|---|---|---|------|
| <input type="checkbox"/> | 34. Gas-phase spectroscopy of a protein | 0 | 2 | 0 | 0 | 0 | 2 | 0.33 |
| | By: Milosavljevic, A. R.; Giuliani, A.; Nicolas, C.; et al.
Edited by: Popovic, LC; Kuraica, MM
Conference: 25th Summer School and International Symposium on the Physics of Ionized Gases - SPIG 2010 Location: Donji Milanovac, SERBIA Date: AUG 30-SEP 03, 2010
Sponsor(s): Minist Sci & Technol Dev Republ Serbia
25TH SUMMER SCHOOL AND INTERNATIONAL SYMPOSIUM ON THE PHYSICS OF IONIZED GASES - SPIG 2010 Book Series: Journal of Physics Conference Series Volume: 257 Article Number: 012006 Published: 2010 | | | | | | | |
| <input type="checkbox"/> | 35. Partial cross sections for dissociative electron attachment to tetrahydrofuran reveal a dynamics-driven rich fragmentation pattern | 0 | 0 | 0 | 0 | 1 | 1 | 0.50 |
| | By: Janeckova, R.; May, O.; Milosavljevic, A. R.; et al.
INTERNATIONAL JOURNAL OF MASS SPECTROMETRY Volume: 365
Special Issue: SI Pages: 163-168 Published: MAY 15 2014 | | | | | | | |
| <input type="checkbox"/> | 36. Optical and electron spectrometry of molecules of biological interest | 0 | 0 | 0 | 0 | 0 | 1 | 0.11 |
| | By: Marinkovic, B. P.; Milosavljevic, A. R.; Majkovic, J. B.; et al.
Conference: International School and Conference on Optics and Optical Materials Location: Belgrade, SERBIA Date: SEP 03-07, 2007
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Published: NOV 2007 | | | | | | | |
| <input type="checkbox"/> | 37. Elastic electron scattering by argon in the vicinity of the high-energy critical minimum | 0 | 0 | 0 | 1 | 0 | 1 | 0.08 |
| | By: Milosavljevic, AR; Telega, S; Sevic, D; et al.
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| <input type="checkbox"/> | 38. CONTRIBUTION OF SYNCHROTRON RADIATION TO PHOTOACTIVATION STUDIES OF BIOMOLECULAR IONS IN THE GAS PHASE | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 |
| | By: Giuliani, Alexandre; Milosavljevic, Aleksandar R.; Canon, Francis; et al.
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Published: NOV-DEC 2014 | | | | | | | |
| <input type="checkbox"/> | 39. Energy-Dependent UV Photodissociation of Gas-Phase Adenosine Monophosphate Nucleotide Ions: The Role of a Single Solvent Molecule | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 |
| | By: Milosavljevic, Aleksandar R.; Cerovski, Viktor Z.; Canon, Francis; et al.
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Pages: 1994-1999 Published: JUN 5 2014 | | | | | | | |
| <input type="checkbox"/> | 40. High-energy electron impact study on autoionizing region in helium by detection of ejected electrons | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 |
| | By: Jureta, J. J.; Milosavljevic, A. R.; Marinkovic, B. P.
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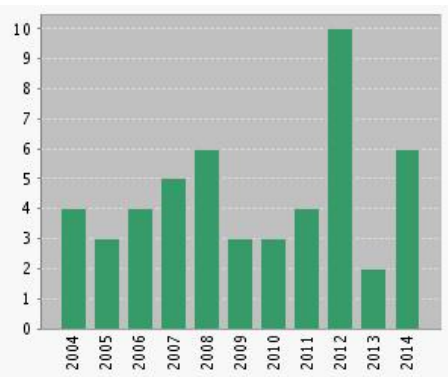
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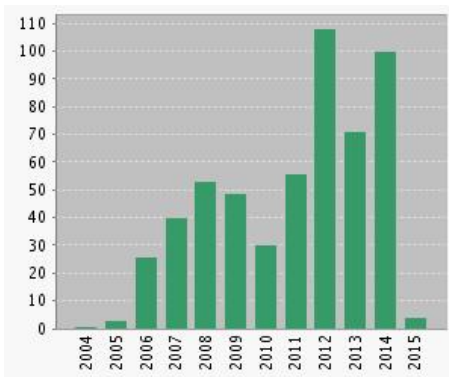
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Edited by: Kuraica, M; Mijatovic, Z

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By: Milosavljevic, A. R.; Jureta, J. J.; Viktor, Gy; et al.

Edited by: Williams, ID; VanDerHart, HW; McCann, JF; et al.

Conference: 27th International Conference on Photonic, Electronic and Atomic Collisions (ICPEAC) Location: Queens Univ Belfast, Belfast, NORTH IRELAND Date: JUL 27-AUG 02, 2011

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By: Cadez, Iztok; Markelj, Sabina; Milosavljevic, Aleksandar R.

Conference: International Conference on Nuclear Energy for New Europe 2009 Location: Bled, SLOVENIA Date: SEP 14-17, 2009

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46. **Phase equilibria investigation and alloys characterization in Sn-In-Ag system**

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Edited by: Malovic, G; Popovic, LC; Dimitrijevic, MS

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