



Workshops & Events

For workshops and schools of interest for Elasto-Q-Mat members, see announcements in Events of the [Equality](#) section.

Date	Title	Location	Details
04.10.2021	New Spin on Molecular Quantum Materials	Mainz	Workshop hosted by SPICE Webpage
20.09.2021	TRR 288 Summer School	online	Virtual summer school: Part II (Duration: 2 days)
13.09.2021	TRR 288 Summer School	online	Virtual summer school: Part I (Duration: 2 days)
15.07.2021	Planckian transport	online	Elasto-Q-Mat Colloquia: Sean Hartnoll (Webpage), Stanford University
08.07.2021	t.b.a.	online	Elasto-Q-Mat Colloquia: Heike Pfau (Webpage), Stanford University
01.07.2021	High-throughput experimentation for materials discovery	online	Elasto-Q-Mat Colloquia: Alfred Ludwig (Webpage), Ruhr University Bochum
24.06.2021	Molecular Quantum Materials: A Workbench for Novel Electronic States	online	Elasto-Q-Mat Colloquia: Martin Dressel (Webpage), University of Stuttgart
17.06.2021	Quantum matter in cavities	online	Elasto-Q-Mat Colloquia: Dieter Jaksch (Webpage), Oxford University
10.06.2021	Dynamic strain techniques - A new angle on Iron Pnictide Superconductors	online	Elasto-Q-Mat Colloquia: Matthias Ikeda (Webpage), Stanford University
27.05.2021	"I've lived as a man & a woman – Here's what I learned"	online	Elasto-Q-Mat Colloquia: Workshop on equal opportunities (TEDx Talk and discussion)
20.05.2021	Probing light-driven superconductors with ultrafast X-ray spectroscopy	online	Elasto-Q-Mat Colloquia: Matteo Mitrano (Webpage), Harvard University

Date	Title	Location	Details
06.05.2021	Kikuchi diffraction for microcrystallographic analysis of materials	online	Elasto-Q-Mat Colloquia: Aimo Winkelmann, AGH University of Science and Technology
29.04.2021	Typicality and exact quantum dynamics for equilibrium and non-equilibrium properties	online	Elasto-Q-Mat Colloquia: Jürgen Schnack (Webpage), University of Bielefeld
23.04.2021	Commensurate non-coplanar spin textures and their emergent electromagnetic response	online	Elasto-Q-Mat Colloquia: Max Hirschberger (Webpage), University of Tokyo
15.04.2021	Quantum Criticality of Polar Metals	online	Elasto-Q-Mat Colloquia: Premala Chandra (Webpage), Rutgers University
29.03.2021	Elasto-Q-Mat Spring Retreat	online	Elasto-Q-Mat Spring Retreat 2021: 29 March - 30 March 2021 Program
18.02.2021	Workshop in perception, stereotype formation and equal opportunities: The danger of a single story	online	Elasto-Q-Mat Colloquia: Gabriele Wiemeyer, Gustav-Stresemann-Institut in Niedersachsen e.V.
11.02.2021	Metastable quantum structures emerging from ultrafast phase transitions in 2D transition metal dichalcogenides	online	Elasto-Q-Mat Colloquia: Dragan Mihailovic (Webpage), Josef Stefan Institute Ljubljana
04.02.2021	Ultrasound as a probe of multi-component superconductivity in Sr₂RuO₄ and UTe₂	online	Elasto-Q-Mat Colloquia: Brad Ramshaw (Webpage), Cornell University
28.01.2021	Unusual magnetism and strongly-correlated electrons in quasi-two-dimensional 4f-systems	online	Elasto-Q-Mat Colloquia: Denis Vyalikh (Webpage), DIPC, IKERBASQUE
21.01.2021	Exploratory Synthesis and Physics Discovery: the case of FeSb₂	online	Elasto-Q-Mat Colloquia: Cedomir Petrovic (Webpage), Brookhaven National Laboratory
14.01.2021	Field-induced transition from even to odd parity superconductivity in CeRh₂As₂	online	Elasto-Q-Mat Colloquia: Elena Hassinger (Webpage), MPI for Chemical Physics of Solids Dresden
17.12.2020	Collective modes in pumped unconventional superconductors with competing ground states	online	Elasto-Q-Mat Colloquia: Ilya Eremin (Webpage), University Bochum
10.12.2020	Pump-probe response of correlated materials under high pressures	online	Elasto-Q-Mat Colloquia: Alexej Pashkin, Helmholtz-Zentrum Dresden- Rossendorf

Prof. CedomirPetrovic from BNL gave a presentation in Laboratory of MEMS

时间：2018-05-14 浏览：795

On Sep 7,2017, Prof. Cedomir Petrovic from Brookhaven National Laboratory visited Key Laboratory of MEMS of the Ministry of Education and gave a presentation “Thermoelectric Power Factor and Electronic Correlations in FeSb_2 ”.His presentation discussed FeSb_2 , a correlated electron semiconductor similar to FeSi that was found to host a record-high thermoelectric power factor (TPF).



Prof. Cedomir Petrovic is physicist with tenure in Brookhaven National Laboratory USA, an adjunct professor in Johns Hopkins University USA, an adjunct professor in Stony Brook University USA, a foreign associate member of Canadian Institute for Advanced Research (CIFAR). He earned his B. Sc. degree in Theoretical Physics from University of Belgrade in 1996, M. Sc. degree in Physics from Florida State University in 1997 and Ph.D. in Physics from Florida State University in 2000. He is a Member of American Physical Society.



New Directions in Quantum Materials Research Workshop: Friday,
January 12, 2018

INVITED SPEAKERS:

Collin Broholm - Johns Hopkins University

Marco Buongiorno-Nardelli - University of North Texas

Jennifer Cano - Princeton University

Rafael Fernandes - University of Minnesota

Tyrel McQueen - Johns Hopkins University

Emilia Morosan - Rice University

Andriy Nevidomskii - Rice University

Mike Norman - Argonne National Laboratory

Cedomir Petrovic - Brookhaven National Laboratory



近期活动

近期活动

学术研究

Colloquium

Conferences

INPAC Seminars

OSERC Seminars

CMP Seminars

LLP Seminars

CAA Seminars

SCCP Seminars

SCCE Seminars

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交大科学前沿论坛

教学研究学术报告系列

特别讲座

年度学术大会

2013

2014

2015

2017

教育教学

[CMP Seminars] Superconducting and Normal States in FeX (X=Se,S) Iron Chalcogenides
报告人: Cedomir Petrovic, Brookhaven National Laboratory

[CMP Seminars] Superconductivity and large magnetoresistance in topological materials
报告人: Kefeng Wang, University of Maryland

[INPAC Seminars] Nuclear Symmetry Energy in Finite Nuclei
报告人: Prof. Mitko K. Gaidarov, Bulgarian Academy of Sciences

[Conferences] The 3rd Conference on Condensed Matter Physics (CCMP-2017)
报告人: Physicists

[CMP Seminars] 机器学习方法在量子多体物理中的应用系列讲座
报告人: 王磊, 中科院物理研究所

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- :: [成果统计 \(/cgtj/index.html\)](#)
- 中心系列报告20 – Cedomir Petrovic**
- :: [欢迎加入 \(/hyjr/index.html\)](#)
- :: [English \(/english/index.html\)](#)

📅 2017-08-02 👤 SC ☰ [学术报告 \(/xsbg/index.html\)](#)

**报告题目: Superconducting
and Normal States in in
FeX (X=Se,S) Iron
Chalcogenides**

摘要:

Iron based superconductors have been attracting considerable attention since their discovery in 2008. In particular, simple binary iron

报告信息

唐仲英楼B501

报告日期: 2017年08月04日

时间: 10:00

报告人: Prof. Cedomir Petrovic
(Condensed Matter Physics and
Materials Science, Brookhaven
National Laboratory)

(mailto:)(http://)



(/DFS//network//xsbg/i5689/156144743708198sh2k.png)

chalcogenides have recently emerged to the frontier of research due to traces of superconducting critical temperatures (T_c 's) similar to copper oxide high- T_c superconductors. In this talk I will discuss characteristics of FeX and $K_xFe_{2-y}X_2$ (X=Se,S). I will mention in a nutshell pair breaking mechanism, magnetic states and critical currents but I will focus on the normal states in high magnetic fields as $T \rightarrow 0$ connected with the electronic and crystallographic phase separation. The presentation will also include brief discussion on magnetic states in semiconducting crystal structures with FeX building blocks.

简历:

Employment and research activities:



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Dr. Cedimir Petrovic [Brookhaven National Laboratory, USA]

Title: **Exploratory Synthesis and Novel Materials Discovery**

Time: 2:00 - 3:00 PM, Wednesday, July 19, 2017

Place: Conference Room 6-410, HPSTAR (Shanghai)

Polycom call #: 02120004

Host: Dr. Bin Chen

Abstract

Since the times of Bernd Matthias exploratory synthesis and characterization has been pushing the boundaries of materials physics. In my presentation I will briefly go over some notable historical examples. These include CeMnIn_5 ($M=\text{Co, Rh, Ir}$) compounds where superconductivity was discovered in a high-pressure experiment or electron-phonon superconductivity in MgB_2 . I will also illustrate how exploratory synthesis enables insight into inelastic neutron scattering in heavy fermion materials and will show how synthesis-induced metal-insulator transition in new narrow gap semiconductors leads to the largest thermoelectric power factor in nature. Then, in more details, I will focus on the crystallographic aspects of phase separation, pair breaking mechanism and the normal state above the Hc_2 in binary and ternary iron selenide superconductors in extreme conditions of high magnetic fields as $T \rightarrow 0$.

Biography of the Speaker



Prof. Cedimir Petrovic received his BS from University of Belgrade, Serbia in 1996 and his MS and Ph.D from Florida State University, in 1997 and 2000, respectively, both in physics. In 2000-2002, he did postdoctoral research in the Ames Lab, Iowa State University. He joined Brookhaven National Lab in 2002 as an assistant physicist. He got his tenure in 2008. In the meanwhile, he is also affiliated with Johns Hopkins University and Canadian Institute for Advanced Research.

At BNL, Dr. Petrovic has established and is leading new exploratory materials synthesis and characterization laboratory. The focus of his research is design, discovery, synthesis and characterization of new model materials for condensed matter physics. Particular emphasis is devoted to the discovery of new phenomena associated with correlated electron behavior and problems in superconductivity and magnetism.

Prof. Petrovic has published ~200 papers that have received over 10,000 citations with h index of 43. More information can be found at <https://www.bnl.gov/energy/ces/cv/petrovic.asp>.

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Unconventional Superconductivity: Materials and Mechanisms

May 24 - 29, 2015

Chair

Hai-Hu Wen

Vice Chairs

Andrey Chubukov

The Chinese University of Hong Kong

Sha Tin

Hong Kong, CN

Conference Description

Superconductivity has not only fundamental impact on condensed matter physics, but also strong potential for applications. The 2015 Gordon Conference on Superconductivity will present the cutting-edge developments in this fascinating field and will chiefly focus on unconventional superconductivity. The conference will lead to in-depth discussions on the exploration of novel superconducting materials, including cuprates, iron based superconductors, heavy-fermion, and other superconductors. For the cuprates, the emphasis will be on precursors to superconductivity, charge order in the pseudogap state, and the role of Mott physics. For iron superconductors, the emphasis will be on the pairing mechanism, the gap symmetry, and the nematic order. The conference will discuss a number of hot issues concerning unconventional superconductivity, on which no consensus has been reached yet. These include the role of spin-fluctuation pairing mechanism, quantum criticality, interface superconductivity, topological superconductivity, etc. This will be a focused, content-rich workshop on modern approaches to superconductivity in the second decade of 21st century.

Related Meeting



This GRC will be held in conjunction with the "Superconductivity (GRS)" Gordon Research Seminar (GRS). Those interested in attending both meetings must submit an application for the GRS in addition to an application for the GRC. Refer to the [associated GRS program page](#) for more information.

Conference Program

Sunday

2:00 pm - 8:00 pm	Arrival and Check-in
6:00 pm	Dinner
7:30 pm - 7:40 pm	Welcome / Introductory Comments by GRC Site Staff
7:40 pm - 9:30 pm	Newly Discovered Superconducting Materials Discussion Leader: Hidenori Takagi (Max Planck Institute for Solid State Research, Germany)
7:40 pm - 7:50 pm	Introduction by Discussion Leader
7:50 pm - 8:05 pm	Paul Canfield (Iowa State University, USA) "The Hows and Whys of Searching for New Superconducting Systems"
8:05 pm - 8:10 pm	Discussion
8:10 pm - 8:25 pm	Mikhail Erements (Max Planck Institute for Chemistry, Germany) "Superconductivity at 190 K in H ₂ S Under 200GPa"
8:25 pm - 8:30 pm	Discussion
8:30 pm - 8:45 pm	Jianlin Luo (Institute of Physics, Chinese Academy of Sciences, China) "Superconductivity on the Border of Double Helical Antiferromagnetic Order in CrAs and Related Materials"
8:45 pm - 8:50 pm	Discussion
8:50 pm - 9:05 pm	Zhu-An Xu (Zhejiang University, China) "Unconventional Superconductivity in New Quasi-1D Superconductors"

9:05 pm - 9:10 pm Discussion

9:10 pm - 9:25 pm **Yoshikazu Mizuguchi** (Tokyo Metropolitan University, Japan)
"Superconductivity in Layered Bi-Based Chalcogenides"

9:25 pm - 9:30 pm Discussion

Monday

7:30 am - 8:30 am Breakfast

9:00 am - 12:30 pm **Novel Iron-Based Superconducting Materials**

New trend of iron based superconductors and monolayer FeSe thin film.

Discussion Leader: **Andrey Chubukov** (University of Minnesota, USA)

9:00 am - 9:10 am Introduction by Discussion Leader

9:10 am - 9:30 am **Qikun Xue** (Tsinghua University, China)
"Interface Enhanced Superconductivity"

9:30 am - 9:35 am Discussion

9:35 am - 9:55 am **Donglai Feng** (Fudan University, China)
"Superconductivity in Iron Selenides with only Electron Fermi Surfaces"

9:55 am - 10:00 am Discussion

10:00 am - 10:20 am **Jennifer Hoffman** (Harvard University, USA)
"Quasiparticle Interference Imaging of Single-Layer FeSe"

10:20 am - 10:25 am Discussion

10:25 am - 10:50 am Group Photo / Coffee Break

10:50 am - 11:10 am	Xingjiang Zhou (Institute of Physics, Chinese Academy of Sciences, China) "Evolution of Electronic Structure and Superconductivity with Doping and Number of FeSe Layers in FeSe/SrTiO ₃ Films"
11:10 am - 11:15 am	Discussion
11:15 am - 11:35 am	Dunghai Lee (University of California, Berkeley, USA) "Is FeSe a Nematic Quantum Paramagnet?"
11:35 am - 11:40 am	Discussion
11:40 am - 12:00 pm	Xianhui Chen (University of Science and Technology of China, China) "Phase Diagram in Novel Superconductor (Li,Fe)OHFeSe"
12:00 pm - 12:05 pm	Discussion
12:05 pm - 12:25 pm	Cedomir Petrovic (Brookhaven National Laboratory, USA) "Superconducting and Normal States in Iron Chalcogenides"
12:25 pm - 12:30 pm	Discussion
12:30 pm	Lunch
1:30 pm - 4:00 pm	Free Time
4:00 pm - 6:00 pm	<u>Poster Session</u>
6:00 pm	Dinner
7:30 pm - 9:30 pm	Nematicity and Orbital Physics in Iron Based Superconductors Discussion Leader: Joerg Schmalian (Karlsruhe Institute of Technology, Germany)
7:30 pm - 7:40 pm	Introduction by Discussion Leader

Physics Department



Useful Links

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Condensed Matter Seminars, year 2014/2015

All regular CM seminars take place in Serin 385 at 1:30pm on Tuesdays.
Seminars not on Tuesday are highlighted in yellow.

Day	Title	Speaker	Speakers Host.
Tuesday, Sept 23 1:30 pm	Exploring spin-transfer and spin-Hall effects in mesoscopic metallic structures	Yi Ji , University of Delaware	Weida
Tuesday, Sept 30 1:30 pm	Kondo effects in quantum point contacts	Yigal Meir , Ben-Gurion University, Israel	Natan
Tuesday, Oct 14 1:30 pm	The Curious Electronic Properties of Hybrid Halide Perovskite Solar Cells	Mark van Schilfgaarde , King's College London	Kristjan
Tuesday, Oct	Optical properties of iron-based	Christopher C. Homes ,	Kristjan

28 1:30 pm Tuesday, Nov 4 1:30 pm	multiband conductors and superconductors Electronic Correlations and Thermoelectric Performance of FeSb₂	Brookhaven National Laboratory Cedomir Petrovic, Brookhaven National Laboratory	Kristjan
Tuesday, Nov 11 1:30 pm	Unveiling the origins of the Anomalous Hall effect	Jin, XiaoFeng, Fudan Univ	Eric
Tuesday, Nov 18 1:30 pm	Quantum Monte Carlo for Materials at High Pressures	Ronald Cohen, Geophysical Laboratory Carnegie Institution	Kristjan
Thursday, Nov 20 1:30 pm	Special Seminar: Taking Control of Coherent Superconducting Quantum Electronics	Irfan Siddiqi, , Quantum Nanoelectronics Laboratory, UC Berkeley	Lev
Tuesday, Nov 25 1:30 pm	Wandering amongst Feynman Diagrams for strongly correlated fermions	Nikolai Prokofev, UMass Amherst	Kristjan
Tuesday, Dec 2 1:30 pm	Phonon localization in relaxor ferroelectrics	Michael E. Manley, Oak Ridge NL	Kristjan
Monday, Dec 8 1:30 pm	Special Seminar: 1/f Flux Noise from Surface Magnetic Defects	Robert McDermott, Madison, Wisconsin	Lev
Tuesday, Dec 9 1:30 pm	Atom chips: quantum gases on the (sub)micron scale	Peter Kruger, U. Nottingham, UK	Piers
Thursday, Dec 11 10:30 am	Emergent properties hidden in plain view: Strong electronic correlations at oxide interfaces	Jacques Chakhalian, University of Arkansas	David
Friday, Dec 12 11:00 am	Phase lapses and dephasing in quantum Hall interferometers	Yhuda Dinaii	Natan
Monday, Dec 15 1:30 pm	Spin and pseudospins in 2D semiconductors	Xiaodong Xu, Department of Physics and MSE University of Washington	Misha
Tuesday, Dec 16 1:30 pm	Evolution of heavy fermion under temperature and pressure changes in heavy fermion compounds and topological Kondo insulators	Ji-Hoon Shim, Pohang University of Science and Technology	Kristjan
Spring Semester			

Tuesday, Jan 27 1:30 pm	TBA	Nai Phuan Ong , Princeton University	Kristjan
Tuesday, Feb 3 1:30 pm	TBA	Andrey Chubukov , University of Wisconsin Madison	Kristjan
Wednesday, Feb 4 4:45 pm (Colloquium)	TBA	Gregory Fiete UT Austin	Piers
Tuesday, Feb 10 1:30 pm	TBA	Douglas R. Strachan, U. Kentucky	Vitaly
Tuesday, Feb 17 1:30 pm	TBA	Mohammed Hamidian Cornell University	Piers
Tuesday, Feb 24 1:30 pm	TBA	Boris Altshuler, Columbia University	
Tuesday, March 3 1:30 pm	No Seminar: March Meeting		
Tuesday, March 10 1:30 pm	Isostatic Lattice: From Jamming to Topological Surface Phonons	Tom Lubensky U. Penn.	Piers
Tuesday, March 24 1:30 pm	TBA	Philip Phillips, University of Illinois, Urbana Champaign	Gabi,Piers
Tuesday, March 31 1:30 pm	TBA	Tony Heinz, Columbia	Vitaly
Tuesday, April 7 1:30 pm	TBA	Name , Institution	
Tuesday, April 14 1:30 pm	TBA	Name , Institution	
Tuesday, April 21 1:30 pm	TBA	Name , Institution	
Tuesday, April 28 1:30 pm	TBA	Name , Institution	

Last Updated: 07/07/2014



TRR 80 Sonderseminar

Am Donnerstag, den 12. Juni um 13:30 Uhr

spricht

Prof. Dr. Cedomir Petrovic

**Condensed Matter Physics, Brookhaven National Laboratory
Upton NY USA**

über das Thema

Superconducting and Normal States in Iron Chalcogenides

Iron based superconductors have been attracting considerable attention since their discovery in 2008 [1]. In particular, alkali-doped iron selenide materials have recently emerged to the top of research fronts in physics [2]. In this talk I will outline selected properties of FeSe-based superconductors with particular emphasis on crystal structure and mechanisms of neighboring insulating states [3-9]. This will be followed by the results in high magnetic fields which address the influence of the subtle crystal structure features on the pair breaking mechanism and the normal state above H_{c2} as $T \rightarrow 0$ [10-12].

References:

- [1] J. Am. Chem. Soc. 130, 3296 (2008)
- [2] Science Watch, April 2013
- [3] Phys. Rev. Lett. 107, 137002 (2011)
- [4] Phys. Rev. B 86, 054503 (2012)
- [5] Phys. Rev. B 85, 224515 (2012)
- [6] Phys. Rev. B 84, 054526 (2011)
- [7] Phys. Rev. B 83, 174503 (2011)
- [8] Phys. Rev. B 84, 060506 (2011)
- [9] Phys. Rev. B 83, 180503 (2011)
- [10] Sci. Tech. Adv. Mater. 13, 054305 (2012)
- [11] Phys. Rev. B(R) in press (2014)
- [12] Submitted (2014)

Gäste sind herzlich willkommen.

Der Vortrag findet im Seminarraum S-403 / Institut für Physik, Universität Augsburg statt.

Gastgeber: Dr. Vladimir Tsurkan
www.trr80.de



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NEWS/SEMINARS/EVENTS

10.9.2015

Quantum criticality and geometric frustration in the anisotropic Kondo material CeRu_4Sn_6

Wesley Fuhrman, Institute for Quantum Matter and Department of Physics and Astronomy, The Johns Hopkins University, Baltimore, MD, USA

[Invitation](#)

22.09.2014

New end of FWF project no. I623 THERMOELECTRICITY OF QUANTUM MATTER is set: September 3, 2015.

2.4.2014

Electronic Correlations and Thermoelectric Performance of FeSb_2 and $(\text{Sr,Ca})\text{MnBi}_2$

Cedomir Petrovic, Condensed Matter Physics, Brookhaven National Laboratory, New York, USA

[Invitation](#)

8.1.2014

Fermi surface(s) and superconducting gap(s) in bulk SrTiO_3

Kamran Behnia, LPEM (UPMC & CNRS), Ecole Supérieure de Physique et de Chimie Industrielles (ESPCI), Paris, France

[Invitation](#)

15.12.2013

New end of FWF project no. I623 THERMOELECTRICITY OF QUANTUM MATTER is set: March 31, 2015.

Funding institution:

FWF Austrian Science Fund

Project leader:

Silke BÜHLER-PASCHEN

Project duration:

April 2011 - October 2015

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Design and discovery of heavy fermion superconductors and semiconductors

Speaker

Cedomir Petrovic — Brookhaven National Laboratory

Time and Place

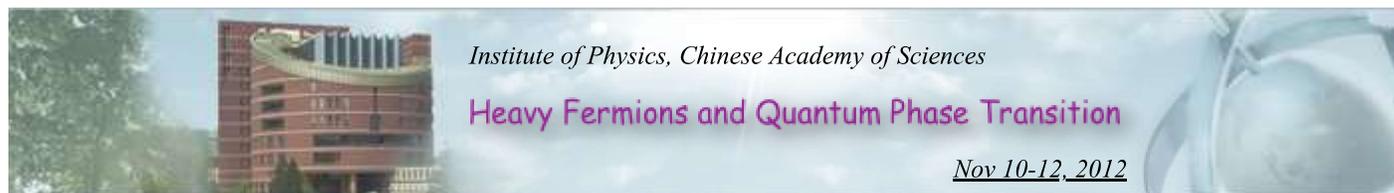
Thursday, 13 March 2014 - 11:00am — CSEC Seminar Room

Abstract

Design and Discovery of Heavy Fermion Superconductors and Semiconductors Cedomir Petrovic Condensed Matter Physics, Brookhaven National Laboratory Heavy fermion superconductors and semiconductors have been attracting considerable interest in the past several decades whereas new materials have been the driving force in the field [1-4]. One of the main points of interest has been the proximity to magnetic ground states, i.e. the possibility that superconducting and semiconducting gaps are driven by or related to magnetic interactions [5-6]. In this talk I will discuss two model materials: heavy fermion superconductor family CeMIn₅ (M=Rh,Ir,Co), and FeSb₂ - a correlated electron semiconductor similar to Kondo Insulators. The CeMIn₅ family of quasi two dimensional heavy fermions has emerged as one of the primary clean model materials where large effective masses due to Abrikosov-Suhl resonance interplay with magnetic and superconducting states [7-9]. I will present CeMIn₅ in the historical context, progressing from the discovery of this superconducting family, touching upon quantum criticality and ending with some recent results. In the case of FeSb₂ I will address the similarity and difference with Kondo Insulators [10], structural and thermoelectric properties of crystals with and without Metal-Insulator transition [11] and unconventional metallic states induced by Te substitution [12]. References: [1] Phys. Rev. Lett. 43, 1892 (1979) [2] Science 239, 33 (1988) [3] Phys. Rev. Lett. 71, 1748 (1993) [4] Nature 450, 1177 (2007) [5] Nature 394, 22 (1998) [6] Phys. Rev. Lett. 69, 490 (1992) [7] Phys. Rev. Lett. 84, 4986 (2000) [8] Europhys. Lett. 53, 354 (2001) [9] J. Phys. Cond. Matter 13, L337 (2001) [10] Phys. Rev. B 72, 045103

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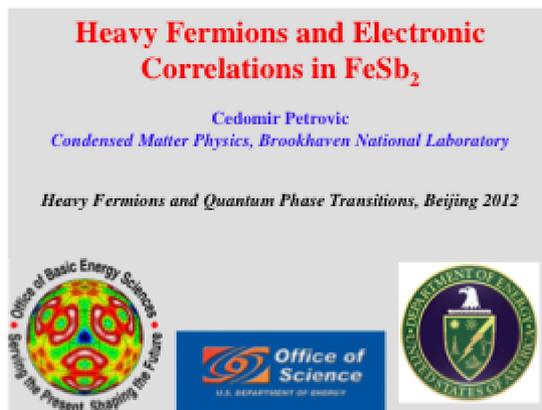
Heavy Fermions and Electronic Correlations in FeSb₂

Cedomir Petrovic

Condensed Matter Physics, Brookhaven National Laboratory, USA

Heavy fermion semiconductors have been attracting considerable interest in the past several decades whereas new materials have been the driving force in the field [1-4]. One of the main points of interest has been the mechanism of the gap and its proximity to magnetic ground states, i.e. the possibility that semiconducting gap is driven by or related to magnetic interactions [5-7]. In this talk I will discuss heavy fermions and electronic correlations in FeSb₂ [8-9], a correlated electron semiconductor similar to FeSi [10]. I will address the similarities and differences with Kondo Insulators as well as structural and thermoelectric properties of crystals with and without Metal-Insulator transition [11].

References: [1] Comments Condens. Matter Phys. 16, 155 (1992), [2] Rev. Mod. Phys. 69, 809 (1997), [3] Adv. Phys. 49, 257 (2000), [4] Phys. Rev. Lett. 69, 490 (1992), [5] Nature 405, 160 (2000), [6] Phys. Rev. B 54, 8452 (1996), [7] Phys. Rev. Lett. 72, 522 (1994), [8] Phys. Rev. B 72, 045103 (2005), [9] Europhys. Lett. 80, 17008 (2007), [10] Phys. Rev. Lett. 71, 1748 (1993), [11] Phys. Rev. B in press (2012).



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contact

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Title : ISSP Introductory Lectures by Visiting Professors (mostly in Japanese)

Date : 2008/4/17(Thu)

Time : 10:00 AM - 0:05 PM

Place : Lecture Room (A632), 6th Floor, ISSP

Summary :

- 10:00-10:10 Opening, Yasuhiro IYE (Director)
- 10:10-10:25 Cedomir Petrovic (Brookhaven National Laboratory, US)
Exploratory Synthesis and Characterization of Heavy Fermion Materials
- 10:25-10:40 Anders Sandvik (Boston University, US)
Nature of quantum fluctuations in a valence-bond solid state on the square lattice
- 10:40-10:55 Jyunshi Haruyama (Aoyama Gakuin University)
Recent Progress in a study of carbon nanotube superconductivity
- boron doping -
- 10:55-11:10 Miho Nakashima (Shinsyu University)
Search for pressure-induced superconductivity in Ce₂CuGe₆ by diamond anvil cell
- 11:10-11:20 Break
- 11:20-11:35 Hitoshi Seo (Japan Atomic Energy Agency)
Metal-insulator transition in mixed valenced systems -molecular conductors and transition metal oxides-
- 11:35-11:50 Jun Nakamura (The University of Electro-Communications)
Nano-scale profile of the dielectric constant near the Si/Oxide interface: A first-principles approach
- 11:50-12:05 Hideo Kitamura (RIKEN)
Status of XFEL Construction at SPring-8

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