

2nd Workshop on Novel Electronic Materials

University of Kentucky, Lexington, KY

May 15 - May 17, 2008

William T. Young Library

Wednesday, May 14

Registration and Reception (8:00PM - 10:00PM)

Radisson Plaza Hotel, Ballroom 4, Lexington

Thursday	Session T-I	08:15am – 10:10pm
	Session T-II	10:40am – 11:55am
	Session T-III	01:00pm – 03:05pm
	Session T-IV	03:35pm – 05:15pm

Friday	Session F-I	08:05am – 09:45am
	Session F-II	10:15am – 11:55am
	Session F-III	01:00pm – 02:40pm

	Open Discussion Session	02:40pm – 03:30pm
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	Session F-IV	Jack Crow Memorial Session , Boone Center (next to Young Library) 03:40pm – 05:50pm
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	Banquet	06:30pm – 08:30pm
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Saturday	Session S-I	08:05am – 09:45am
	Session S-II	10:15am – 11:55pm
	Session S-III	01:00pm – 03:05pm
	Session S-IV	03:20pm – 04:50pm

Poster Sessions Thursday and Friday with Coffee Breaks

Thursday, May 15

Session T-I

Chair: Brian Sales

8:15am - 8:30 am

Provost Dr. Kumble R. Subbaswamy

University of Kentucky

Opening Remarks

T-I.1

8:30am - 8:55am

M. Brian Maple

*Correlated electron phenomena in Ce- and Pr-based filled skutterudite
arsenides and antimonides*

University of California, San Diego, USA

T-I.2

8:55am - 9:20am

Pedro U. Schlottmann

*Crossover from non-fermi liquid to fermi liquid behavior
close to quantum critical point*

Florida State University, USA

T-I.3

9:20am - 9:45am

Peter S. Riseborough

The anomalous hall effect in heavy fermion semiconductors

Temple University, USA

T-I.4

9:45am - 10:10am

Christian Pfleiderer

Non-fermi liquid metal without quantum criticality

TU München, Germany

10:10am - 10:40am

Coffee Break

Thursday, May 15

Session T-II

Chair: S. Lance Cooper

T-II.1 10:40am - 11:05am

David C. Johnston

Recent studies of LiV_2O_4 and related materials

Ames Lab / Iowa State University, USA

T-II.2 11:05am - 11:30am

Stephen E. Nagler

Neutron scattering and orbital degeneracy

Oak Ridge National Lab, USA

T-II.3 11:30am - 11:55am

Victoria Soghomonian

*Synthesis, characterization and electronic properties of novel cubic
phase vanadium compounds*

Virginia Tech, USA

11:55am - 1:00pm

Lunch

Thursday, May 15

Session T-III

Chair: Pedro Schlottmann

T-III.1 1:00pm - 1:25pm

S. Lance Cooper

*Quantum and classical mode softening near the charge-density-wave/
superconductor transition of Cu_xTiSe_2*

University of Illinois at Urbana-Champaign, USA

T-III.2 1:25pm - 1:50pm

John Singleton

*Towards an understanding of the cuprates- some recent quantum oscillation
experiments at the National High Magnetic Field Laboratory*

National High Magnetic Field Lab / Los Alamos National Lab, USA

T-III.3 1:50pm - 2:15pm

R. Torsten Clay

*From spatially-ordered valence-bond solid to unconventional
superconductivity in organic charge-transfer solids*

Mississippi State University, USA

T-III.4 2:15pm - 2:40pm

Zenji Hiroi

Pyrochlore oxide superconductors: rattling good materials

University of Tokyo, Japan

T-III.5 2:40pm - 3:05pm

Jungseek Hwang

Electron-boson interaction in the cuprates

University of Florida, USA

3:05pm - 3:35pm

Coffee Break & Poster Session

Thursday, May 15

Session T-IV

Chair: Sang Wook Cheong

T-IV.1 3:35pm - 4:00pm

Elbio R. A. Dagotto

*Study of models for manganites and underdoped cuprates,
in bulk and multilayer forms*

University of Tennessee / Oak Ridge National Lab, USA

T-IV.2 4:00pm - 4:25pm

David B. Tanner

Infrared studies of phase-separated manganite thin films

University of Florida, USA

T-IV.3 4:25pm - 4:50pm

Jeffrey W. Lynn

Polaron order and dynamics in CMR manganites

National Institute of Standards and Technology, USA

T-IV.4 4:50pm - 5:15pm

Jian Shen

Complexity under spatial confinement

University of Tennessee / Oak Ridge National Lab, USA

Friday, 16 May 2008

Session F-I

Chair: Dimitri N. Basov

F-I.1 8:05am - 8:30am

Collin Broholm

Frustrated magnetism and ferroelectricity

The Johns Hopkins University, USA

F-I.2 8:30am - 8:55am

James S. Brooks

Debye relaxation in high magnetic fields

National High Magnetic Field Lab / Florida State University, USA

F-I.3 8:55am - 9:20am

Tsuyoshi Kimura

Magnetoelectric coupling in induced-multiferroics with frustrated spins

Osaka University, Japan

F-I.4 9:20am - 9:45am

Manuel Angst

Interplay of charge order and magnetism in multiferroic LuFe_2O_4

Oak Ridge National Lab, USA

9:45am - 10:15am

Coffee Break & Poster Session

Friday, 16 May 2008

Session F-II

Chair: Bernard Raveau

F-II.1 10:15am - 10:40am

Warren E. Pickett

*Collectivization at oxide heterointerfaces:
interconnection of structural, charge, spin, and orbital flexibility*

University of California, Davis, USA

F-II.2 10:40am - 11:05am

Brian Sales

Recent experimental results from Oak Ridge National Laboratory on the new arsenide superconductor:



Oak Ridge National Lab, USA

F-II.3 11:05am - 11:30am

Nan Lin Wang

*Competition between superconductivity and spin-density-wave
instability in $\text{Re}(\text{O}_{1-x}\text{F}_x)\text{FeAs}$ ($\text{Re}=\text{La}, \text{Ce}, \text{Nd}, \dots$ rare earth element)*

Chinese Academy of Sciences, China

F-II.4 11:30am - 11:55am

Hai-Hu Wen

Unconventional superconductivity in electron and hole doped iron-based superconductors

Chinese Academy of Sciences, China

11:55am - 1:00pm

Lunch

Friday, 16 May 2008

Session F-III

Chair: Jeffrey W. Lynn

F-III.1 1:00pm - 1:25pm

Bernard Raveau

*The layered ordered perovskites $\text{LnBaCo}_2\text{O}_{5.50}$ & $\text{LaBaCo}_2\text{O}_6$:
structure magnetism and transport properties*

Laboratoire CRISMAT – UMR 6508 – ENSICAEN /
CNRS, Bd du Maréchal Juin 14050 CAEN Cedex, FRANCE

F-III.2 1:25pm - 1:50pm

T. W. Noh

*Cooperative interplay between spin-orbit coupling and electron correlation and the
realization of novel $J_{\text{eff}}=1/2$ Mott insulator in layered Iridates*

Seoul National University, Korea

F-III.3 1:50pm - 2:15pm

Gang Cao

Spin-valve effect in bulk single crystals and hyper-exchange-enhanced paramagnetism in oxides

University of Kentucky, USA

F-III.4 2:15pm - 2:40pm

Patrick M. Woodward

Chemical, orbital and spin ordering complex perovskites

Ohio State University, USA

Friday, 16 May 2008

Coffee Break / Open Session for FeAs based superconductors

Chair: Gang Cao

2:40pm - 3:30pm

In light of the recent excitement generated by the FeAs based superconductors we have decided to add an informal open discussion session on these superconductors
Everyone interested may present a couple of slides to share his/her thoughts on the subject.

Friday, 16 May 2008

Dr. Jack Crow Memorial Session

Hillary Boone Center, University of Kentucky

3:30pm - 4:30pm

Chair: Robert P. Guertin

Cocktails

Joan Crow

Opening Remarks

M.1 3:40pm - 4:10pm

Robert P. Guertin

The research career of Jack E. Crow: A retrospective

Tufts University, USA

M.2 4:10pm - 4:35pm

Lance Delong

Multielectron Kondo effect and heavy electrons in LI_2 rare earth alloys

University of Kentucky, USA

M.3 4:35pm - 5:00pm

Peter Riseborough

TBA

Temple University, USA

M.4 5:00pm - 5:25pm

Tan Yuen

TBA

Temple University, USA

M.5 5:25pm - 5:50pm

James S. Brooks

Jack's Vision – The Charles, The Schuykill

National High Magnetic Field Lab / Florida State University, USA

6:30pm - 8:30pm

Banquet (Hillary J. Boone Center)

Saturday, 17 May 2008

Session S-I

Chair: David B. Tanner

S-I.1 8:05am - 8:30am

Sang Wook Cheong
Nano-self-assembly in complex oxides
Rutgers University, USA

S-I.2 8:30am - 8:55am

Dimitri N. Basov
Infrared spectroscopy of correlated electron matter at the nano-scale
University of California, San Diego, USA

S-I.3 8:55am - 9:20am

Stephen Hill
Quantum spin dynamics in molecular nanomagnets
University of Florida, USA

S-I.4 9:20am - 9:45am

Jean J. Heremans
*Effects of electromagnetic quantum phases in strongly
spin-orbit coupled materials*
Virginia Tech, USA

9:45am - 10:15am

Coffee Break & Poster Session

Saturday, 17 May 2008

Session S-II

Chair: T. W. Noh

S-II.1 10:15am - 10:40am

Daniel Haskel

High pressure studies of magnetism using X-ray magnetic circular dichroism the case of giant magnetocaloric material $Gd_5(Si_xGe_{1-x})_4$

Argonne National Lab, USA

S-II.2 10:40am - 11:05am

Rongying Jin

Phase transitions and magnetic field effect in spinel MnV_2O_4

Oak Ridge National Lab, USA

S-II.3 11:05am - 11:30am

Larysa V. Shlyk

Ferromagnetism above room temperature in semiconducting ruthenates

University of Kentucky, USA

S-II.4 11:30am - 11:55am

Joseph Brill

Electro-optic infrared probes of slow-dynamics in quasi-low-dimensional materials

University of Kentucky, USA

11:55am - 1:00pm

Lunch

Saturday, 17 May 2008

Session S-III

Chair: James S. Brooks

S-III.1 1:00pm - 1:25pm

Janice L. Musfeldt

Phonons under spatial confinement

University of Tennessee, USA

S-III.2 1:25pm - 1:50pm

Kwok Wai Ng

Metal insulation transition of $\text{Ca}_3\text{Ru}_2\text{O}_7$ studied by tunneling spectroscopy

University of Kentucky, USA

S-III.3 1:50pm - 2:15pm

Douglas Strachan

Surface Potentials and Layer Charge Distributions in Few-Layer Graphene Films

University of Kentucky, USA

S-III.4 2:15pm - 2:40pm

Bruce Hinds

Metal/Insulator/Metal trilayer molecular electrodes for magnetic spin filters

University of Kentucky, USA

S-III.5 2:40pm - 3:05pm

Rolando Valdés Aguilar

Electromagnons in multiferroic manganites

University of Maryland, USA

3:05pm - 3:35pm

Coffee Break

Saturday, 17 May 2008

Session S-IV

Chair: John Singleton

S-IV.1 3:20pm - 3:45pm

Beth Guiton

Nano-checkerboard superlattices:

Spontaneous periodic phase separation in Li-ion containing oxides

University of Kentucky, USA

S-IV.2 3:45pm - 4:10pm

S. J. Moon

Orbital-driven electronic structure changes and the resulting optical anisotropy

of the quasi-two-dimensional spin gap compound $\text{La}_4\text{Ru}_2\text{O}_{10}$

Seoul National University, Korea

S-IV.3 4:10pm - 4:35pm

TBA

4:35pm - 4:50pm

M. Brian Maple

Closing Remarks