



# SYNTHESIS AND EXOTIC PHYSICS OF NOVEL QUANTUM MATERIALS

*Ames, August 1 – 3, 2018*

Wednesday, August 1		Thursday, August 2		Friday, August 3	
8:50 am	opening				
9:00 am	<b>WI1</b> Hermann Suderow	9:00 am	<b>TI1</b> Yoshiya Uwatoko	9:00 am	<b>FI1</b> David Mandrus
9:40 am	<b>WC1</b> Ni Ni	9:40 am	<b>TC1</b> Valentin Taufour	9:40 am	<b>FC1</b> Manuel Angst
10:00 am	<b>WC2</b> Shuang Jia	10:00 am		10:00 am	<b>FC2</b> Eundoek Mun
10:20 am	coffee break	10:20 am	coffee break	10:20 am	coffee break
10:40 am	<b>WI2</b> Hai-Hu Wen	10:40 am	<b>TI2</b> Claudia Felser	10:40 am	<b>FI2</b> Toshiro Takabatake
11:20 am	<b>WC3</b> Gang Wang	11:20 am	<b>TC2</b> George Schmiedeshoff	11:20 am	<b>FC3</b> Matthew Willard
11:40 am	lunch	11:40 am	lunch group photo	11:40 am	lunch
1:00 pm	<b>WI3</b> John Mitchell	1:00 pm	<b>TI3</b> Joerg Schmalian	1:00 pm	<b>FI3</b> Alan Goldman
1:40 pm	<b>WC4</b> Stehanie Law	1:40 pm	<b>TC3</b> Ian Fisher	1:20 pm	<b>FC4</b> Zahirul Islam
2:00 pm	<b>WC5</b> Anton Jesche	2:00 pm		1:40 pm	<b>FC5</b> Jie Ma
2:20 pm	coffee break	2:20 pm	coffee break	2:00 pm	<b>FC6</b> Jiaqiang Yan
2:40 pm	<b>WC6</b> Sheng Ran	2:40 pm	<b>TC4</b> Na Hyun Jo	2:20 pm	coffee break
3:00 pm	<b>WC7</b> Halyna Hodovanets	3:00 pm	<b>TC5</b> Joel Strand	2:40 pm	<b>FI4</b> Adam Kaminski
3:20 pm	<b>WC8</b> William Meier	3:20 pm	Open discussion - <b>TD1</b>	3:00 pm	<b>FC7</b> Fivos Drymiotis
3:40 pm	<b>WC9</b> Victor Barrena			3:20 pm	Open discussion – <b>FD1</b>
4:00 pm	coffee break			3:40 pm	
4:20 pm	<b>WC10</b> Li Xiang	4:20 pm	lab tours small groups Meetings Bocce tournament	4:40 pm	closing
4:40 pm	Open discussion – <b>WD1</b> Paul C. Canfield				
5:40 pm	adjourn, dinner in groups	5:30 pm	Banquet		



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## Wednesday, August 1

### Invited talks:

- WI1 Hermann Suderow *Electronic interference observed by very low temperature scanning tunneling microscopy*
- WI2 Hai-Hu Wen *Exploration of unconventional and topological superconducting materials*
- WI3 John Mitchell *High Pressure Floating-Zone Crystal Growth of Correlated Electron Oxides*

### Contributed talks:

- WC1 Ni Ni *Charge density wave and incommensurate helical magnetic structure in layered  $\text{EuAg}_4\text{As}_2$  single crystals*
- WC2 Shuang Jia *Thermoelectric properties of Weyl semimetals*
- WC3 Gang Wang *Crystal structures, magnetic, and electronic properties of Rb-intercalated  $\text{NbSe}_2$*
- WC4 Stephanie Law *High-quality growth of chalcogenide topological insulators by MBE*
- WC5 Anton Jesche *Novel Magnetic Materials and Crystal Growth Techniques*
- WC6 Sheng Ran *Discovery of a novel spin-triplet superconductor in a uranium based compound*
- WC7 Halyna Hodovanets *Thermodynamic and transport properties of  $\text{CeAlGe}$*
- WC8 William Meier *Spin-vortex crystal antiferromagnetism in  $\text{CaK}(\text{Fe}_{1-x}\text{M}_x)_4\text{As}_4$*
- WC9 Victor Barrena *Low Temperature STM in pnictide superconductors*
- WC10 Li Xiang *Pressure-temperature phase diagrams of  $\text{CaK}(\text{Fe}_{1-x}\text{Ni}_x)_4\text{As}_4$  superconductors*
- Open discussion (Paul Canfield – lead). *New materials and advances in synthesis*



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**Thursday, August 2**

Invited talks:

- |     |                 |  |
|-----|-----------------|--|
| T11 | Yoshiya Uwatoko | <i>Pressure effect on the 3d helimagnetic systems CrAs and MnP</i>             |
| T12 | Claudia Felser  | <i>Topological Materials with liquid electrons</i>                             |
| T13 | Joerg Schmalian | <i>Intertwined vestigial order in quantum materials: nematicity and beyond</i> |

Contributed talks:

- |     |                      |  |
|-----|----------------------|--|
| TC1 | Valentin Taufour     | <i>Magnetism: Strong and Weak</i>  |
| TC2 | George Schmiedeshoff | <i>ScF<sub>3</sub> redux: Evidence for a structural quantum critical point</i>                             |
| TC3 | Ian Fisher           | <i>New methods and new materials to study nematic quantum phase transitions</i>                            |
| TC4 | Na Hyun Jo           | <i>Tuning of extremely large magnetoresistance in layered intermetallic compounds with uniaxial strain</i> |
| TC5 | Joel Strand          | <i>Controlling Superconducting Qubits with Josephson Junction</i>  |

Open discussion



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## Friday, August 3

### Invited talks:

- |     |                    |   |
|-----|--------------------|---|
| FI1 | David Mandrus      | <i>Anisotropic susceptibilities in the honeycomb Kitaev system <math>\alpha</math>-RuCl<sub>3</sub></i> |
| FI2 | Toshiro Takabatake | <i>Synthetic minerals of tetrahedrites and colusites as thermoelectric materials</i>                    |
| FI3 | Alan Goldman       | <i>CCLEM, Complex States and Rare Earth Magnetism....What a ride!</i>                                   |
| FI4 | Adam Kaminski      | <i>We see everything with ARPES – TBD</i>   |

### Contributed talks:

- |     |                 |   |
|-----|-----------------|---|
| FC1 | Manuel Angst    | <i>Complex charge and spin ordering phenomena in rare earth ferrites</i>  |
| FC2 | Eundeok Mun     | <i>Suppression of ferromagnetism of Ce<sub>x</sub>La<sub>1-x</sub>TiGe<sub>3</sub> system</i>   |
| FC3 | Matthew Willard | <i>Blobology of pnictide superconductors</i>  |
| FC4 | Zahirul Islam   | <i>A journey on Devil's staircase: a tale of frustration, inspiration, and innovation</i>   |
| FC5 | Jie Ma          | <i>Neutron Scattering Study on the Quantum Effect in the Triangular-Lattice Antiferromagnet Ba<sub>3</sub>CoSb<sub>2</sub>O<sub>9</sub></i> |
| FC6 | Jiaqiang Yan    | <i>Structural transition and possible pressure-induced superconductivity in a suboxide La<sub>5</sub>Pb<sub>3</sub>O</i>                    |
| FC6 | Fivos Drymiotis | <i>Development of high efficiency segmented thermoelectric couples for space applications</i>   |

Open discussion