**Tuesday, June 25, 2019**

7:45-8:15 Breakfast at TSRC meeting site.

8:15-8:25 Welcome and Opening Remarks (Organizers).

***Topic: Spin Orbit Coupling I – Chair: Stephen Wilson***

8:25-8:55 Feng Ye — Electric control of the physics properties of the spin-orbit coupled 4d/5d oxides.

8:55-9:25 Gang Cao — Quantum liquid from strange frustration in the trimer magnet Ba4Ir3O10.

9:25-9:55 Daniil Khomski i —SO vs JT vs CF vs MO vs Hund: a few stories

9:55-10:30 Coffee Break

***Topic: 3d-Materials I – Chair: Julia Mundy***

10:30-11:00 Chris Wolverton — Materials Design of High-Energy Cation/Anion Redox in Li-rich Cathode Materials: Li5FeO4 and Li2MO3

11:00-11:30 Alex Zunger — The minimal physical picture needed to understand gapping, magnetism, displacements and disproportionation in 3d oxides.

11:30-12:00 Hyowon Park — Charge ordering in covalent LaCoO3 driven by spin-state ordering.

Afternoon Free

6:30-7:15 TSRC Town Talk – **"What Is a Single Molecule, and What Can You Do With It?"**

Speaker: W.E. Moerner – 2014 Nobel Laureate, Stanford University

Location: Telluride Conference Center in Mountain Village

Cash Bar starts at 6:00PM.

**Wednesday, June 26, 2019**

7:45-8:15 Breakfast at TSRC meeting site.

***Topic: Frustrated Materials – Chair: Judit Romhanyi***

Frustration/Spinel Pyrochlore

8:15-8:45 Martin Mourigal — Magnetic excitations in classical spin liquids: the case of MgCr2O4 and beyond.

8:45-9:15 Tom Fennell — Multiple Coulomb Phase in the Fluoride Pyrochlore CsNiCrF6.

9:15-9:45 Andrew Christianson — Magnetic excitations in breathing pyrochlore and pyrochlore materials.

9:45-10:15 Stephen Wilson — Unconventional magnetism in layered alpha-phase NaMO2 (M=Mn, Yb) triangular lattice magnets.

10:15-10:45 Coffee Break

***Topic: 3d Materials II – Chair: Andrew Christianson***

10:45-11:15 Antia Botana — Mimicking cuprates with low-valence layered nickelates.

11:15-11:45 Daniel Phelan — Charge and spin ordering in trilayer nickelates.

11:45-12:15 John Mitchell — Materials Issues in Single Crystal LaNiO3: An Antiferromagnetic Metal or Not?

Afternoon Free

6:00-8:00 TSRC Picnic, under the tent outside of the Telluride Intermediate School, 725 W Colorado Ave, Telluride.

**Thursday, June 27, 2019**

7:45-8:15 Breakfast at TSRC meeting site.

***Topic: Topological Materials – Chair: Warren Pickett***

8:15-8:45 Judit Romhanyi — Topologically nontrivial excitations in quantum magnets.

8:45-9:15 Nirmal Ghimire — A materials-driven approach to novel topological states.

9:15-9:45 Joe Checkelsky — Dirac Electrons in Kagome Lattice Materials.

9:45-10:15 Kentaro Ueda — Emergent properties of correlated Dirac and Weyl semimetals in iridates

10:15-10:45 Coffee Break

***Topic: Spin-Orbit Coupling II – Chair: Jaime Fernandez-Baca***

10:45-11:15 Yue Cao — ‘Normal-state’ nematicity in a spin-orbit coupled Mott insulator.

11:15-11:45 Ho Nyung Lee — Interfacial symmetry control of topological Hall effect in SrIrO3-based heterostructures.

11:45-12:15 Warren Pickett — Organometallic-like localization of 4d-derived spins in an inorganic conducting niobium suboxide.

Afternoon Free

7:00 – No Host Dinner (location TBD)

**Friday, June 28, 2019**

7:45-8:15 Breakfast at TSRC meeting site.

***Topic: 3d Materials III – Chair: Natalia Perkins***

8:15-8:45 Anand Bhattacharya **—** Meeting a strange metal in thin films and heterostructures of LaNiO3.

8:45-9:15 Marissa Medarde **—** Stabilizing magnetic spirals in layered perovskites far beyond room temperature.

9:15-9:45 Jaime Fernandez-Baca **—** Spin interactions in the molecular multiferroic (ND4)2[FeCl5(D2O)].

9:45-10:15: Despina Louca **—** Large Magnetoresistance in an I-Mn-V antiferromagnet.

10:15-10:45 Coffee Break

***Topic: 3d Materials IV – Chair: John Mitchell***

10:45-11:15 Mike Norman **—** What does second harmonic generation tell us about hidden order.

11:15-11:45 Julia Mundy **—** Uncovering hidden grounds in a multiferroic using interfacial electrostatic engineering.

11:45-12:15 Simon Billinge **—** Why are orbital ordering temperatures so low: Colossal Effects undone by Competing Interactions?

Afternoon Free

7:00 – 9:00 Evening Discussion (Topic TBD)

**Saturday June 29, 2019**

7:45-8:15 Breakfast at TSRC meeting site.

***Topic: Kitaev Physics I – Chair: Roser Valenti***

8:15-8:45 Minhyea Lee **—** Understanding magnetic anisotropy in 2d quantum magnets with honeycomb lattice.

8:45-9:15 Natalia Perkins **—** Observing spin fractionalization in the Kitaev spin liquid.

9:15-9:45 Cristian Batista **—** Vison Crystals in an Extended Kitaev Model on the Honeycomb Lattice.

9:45-10:15 Coffee Break

***Topic: Kitaev Physics II – Chair: Mike Norman***

10:15-10:45 David Mandrus — New Kitaev Materials.

10:45-11:15 Roser Valenti **—** Progress in some Kitaev materials: a theoretical perspective.

11:15-11:30 Closing Remarks (Organizers).

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**Workshop Organizers TSRC Host**

Andy Christianson, 865-742-1539 Mark Kozak, 970-708-4426

Jaime Fernandez-Baca, 865-776-4844

John Mitchell, 312-545-6115

Mike Norman, 630-991-1570