

## Neutrons and Complementary Techniques for Quantum Materials

August 11-14, 2020 (Virtually)

Time (EST)	Title	Speaker
<b>Tuesday, August 11, 2020</b>		
8:50-9:00 am	Welcome/Organizational Announcements	Steve Nagler (ORNL)
9:00-9:50 am	Spin dynamics in $\alpha$ -RuCl <sub>3</sub> : high-field ESR studies	Sergei Zvyagin (HZDR)
9:50-10:40 am	Giant Neutron Response in Emergent Topological Materials	Mingda Li (MIT)
10:40-11:00 am	<b>Break</b>	
11:00-11:50 am	Local insights on lattice dynamics and spins: how Mossbauer spectroscopy complements neutron scattering	Raphael Hermann (ORNL)
11:50 am-1:00 pm	<b>Lunch</b>	
1:00-1:50 pm	NMR and extreme conditions in condensed matter	Stuart Brown (UCLA)
1:50-2:40 pm	Orbital selective superconductivity in iron-based superconductors	Pengcheng Dai (Rice Univ.)
2:40-3:00 pm	<b>Break</b>	
3:00-3:50 pm	Spin-valley locking and surface chiral state in a three-dimensional noncentrosymmetric Dirac semimetal BaMnSb <sub>2</sub>	Zhiqiang Mao (PSU)

**Event contact:** Sharon A. Porter, email: [portersa@ornl.gov](mailto:portersa@ornl.gov)

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Time (EST)	Title	Speaker
<b>Wednesday, August 12, 2020</b>		
9:00-9:50 am	Electronic character and magnetic order in quantum heterostructures: Opportunities for combined neutron and resonant x-ray scattering approaches	Steve May (Drexel Univ.)
9:50-10:40 am	Complementary inelastic neutron and x-ray scattering to probe metal-insulator transitions and charge-spin-phonon coupling	Olivier Delaire (Duke Univ.)
10:40-11:00 am	<b>Break</b>	
11:00-11:50 am	Complementary neutron and synchrotron x-ray diffraction studies: from orbital-ordering to supercritical elasticity	Yang Ren (ANL)
11:50 am-1:00 pm	<b>Lunch</b>	
1:00-1:50 pm	Devil's Staircases in frustrated magnets - quantum annealing and dynamic antiferromagnetic domains investigated with high fields and coherent X-rays	Vivien Zapf (LANL)
1:50-2:40 pm	Far-IR and Raman Magneto-Spectroscopies. Unique Techniques in Probing Molecular Magnetism	Zi-ling Xue (UTK)
2:40-3:00 pm	<b>Break</b>	
3:00-3:50 pm	Neutrons & Thermodynamics Identify an Unusual "Quantum Dimer Magnet" in Yb <sub>2</sub> Si <sub>2</sub> O <sub>7</sub>	Kate Ross (CSU)

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<b>Thursday, August 13, 2020</b>		
9:00-9:50 am	Coexistence and interaction of spinons and magnons in a quasi-1D antiferromagnet with quantum spin chains	Xianglin Ke (MSU)
9:50-10:40 am	Muon Spin Rotation/Relaxation: A Real-Space Probe of Quantum Materials	Graeme Luke (McMaster Univ.)
10:40-11:00 am	<b>Break</b>	
11:00-11:50 am	Giant Barocaloric Effect in a First Order Spin Crossover Molecular Crystal Probed by Neutron Diffraction and Calorimetry under Pressure	Karl Sandeman (Brooklyn college)
11:50 am-1:00 pm	<b>Lunch</b>	
1:00-1:50 pm	Neutron scattering and x-ray scattering studies of kagome quantum magnets	Young Lee (Stanford Univ.)
1:50-2:40 pm	Linear and non-linear THz spectroscopy of excitations in quantum many-body systems	Fahad Mahmood (UIUC)
2:40-3:00 pm	<b>Break</b>	
3:00-3:50 pm	Probing orbital physics in the iron-based superconductors	Ming Yi (Rice Univ.)

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**August 11-14, 2020 (Virtually)**

Time (EST)	Title	Speaker
<b>Friday, August 14, 2020</b>		
9:00-9:50 am	Studying correlated electron systems with muons and neutrons	Yasutomo Uemura (Columbia Univ.)
9:50-10:40 am	<i>SEEMS: a Single Event Effects &amp; Muon Spectroscopy facility at the Spallation Neutron Source</i>	Travis Williams (ORNL)
10:40-10:50 am	<b>Break</b>	
10:50-11:40 am	High Pressure and Strain Effects on Spin-orbit entangled States in Layered square lattice systems	Jongwoo Kim (ANL)
11:40 am-12:00 pm	Closing Remarks	Hans Christen (ORNL)
12:00 pm	<b>Close</b>	

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