

Neutrons and Complementary Techniques for Quantum Materials

August 18-21, 2020 (Virtually)

Time	Title	Speaker
Tuesday, August 18, 2020		
8:50-9:00 am	Welcome/Organizational Announcements	Steve Nagler (ORNL)
9:00-9:50 am	Spin dynamics in low-D spin systems: high-field ESR	Sergei Zvyagin (HZDR)
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	Break	
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	Lunch	
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	Break	
3:00-3:50 pm	Spin-valley locking and surface chiral state in a three-dimensional noncentrosymmetric Dirac semimetal BaMnSb ₂	Zhiqiang Mao (PSU)

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Time	Title	Speaker
Wednesday, August 19, 2020		
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	Giant Neutron Response in Emergent Topological Materials	Mingda Li (MIT)
10:40-11:00 am	Break	
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	Lunch	
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	Break	
3:00-3:50 pm	Neutrons & Thermodynamics Identify an Unusual "Quantum Dimer Magnet" in Yb ₂ Si ₂ O ₇	Kathryn Ross (CSU)

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Time	Title	Speaker
Thursday, August 20, 2020		
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	Break	
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	Lunch	
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	Break	
3:00-3:50 pm	Probing orbital physics in the iron-based superconductors	Ming Yi (Rice Univ.)

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Time	Title	Speaker
Friday, August 21, 2020		
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 & Muon Spectroscopy facility at the Spallation Neutron Source</i>	Travis Williams (ORNL)
10:40-10:50 am	Break	
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	Alan Tennant (ORNL)
12:00 pm	Close	

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