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Topological Materials Science Seminar (67)

# Transport and Symmetry in Spin-Orbit Coupled Magnets

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**Place: Seminar Room 2, International Center of Educational  
Research 2<sup>nd</sup> floor, Institute for Materials Research,  
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**Date: July 23 (Monday), 2018**

**Time: 15:00-16:00**

**Abstract:**

The combination of strong spin-orbit coupling and magnetism gives rise to unusual electronic behavior ranging from magnetically driven quantum Hall states to spin torque effects. Here we focus on the combination of the spin-orbit interaction and crystalline symmetries in driving unusual electronic transport behavior. We first discuss experiments probing the role of rotational symmetries in providing protection to electronic states and spin-orbit induced Berry curvature in ferromagnetic metals. We also discuss our ongoing experiments investigating the role of non-symmorphic symmetries in producing spontaneous symmetry broken magnetic patterns in rare-earth element systems. We comment on the potential for extending these phenomena to broader classes of systems as probes of the underlying symmetry and connectivity of their constituent lattices.