

**CMP Seminar**  
**Michigan State University**

**Yaroslav Tserkovnyak**  
**UCLA**

*Hydrodynamics in insulators*

I will review recent progress in understanding novel transport phenomena in magnetic insulators. Central to this will be conservation laws that are rooted in topological invariance of certain types of magnetic field configurations. The continuity relations associated with such dynamic spin textures can mimic superfluid phenomena, even at high temperatures. Key examples will include easy-plane magnetic films, materials that harbor skyrmionic textures, and, surprisingly, disordered glassy spin systems. Recently developed magnetoelectric and thermoelectric techniques (e.g., based on spin Hall and spin Seebeck effects) are now allowing us to systematically access this physics in a range of materials, both old and new.

**Monday, November 6, 2017**  
**4:10 p.m.**  
**BPS 1400**  
**Prof. Mark Dykman - Host**