

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

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***Topological “spin” transport through magnetic insulators***

New experimental tools have recently emerged that allow us to explore spin transport phenomena in essentially any material, either electrically conducting or insulating. Namely, multiterminal electrical circuits allow for injection of spin currents using the spin Hall effect and detection using the reciprocal process. Similarly, the reciprocal spin Seebeck and Peltier effects can be utilized to inject and detect spin currents thermally. A range of transport regimes for transmitting nonlocal spin signals through insulating media have recently been discussed, with a focus on magnetically-ordered, e.g., ferromagnetic or antiferromagnetic, materials. In this talk, I will review these developments, with a focus on topological aspects, which mitigate the detrimental spin-relaxation processes. In certain cases, the spin transport is entirely superseded by the flow of a topological charge associated with dynamic magnetic textures.

**Monday, December 5, 2016**  
**4:10 p.m.**  
**BPS 1400**  
**Prof. Mark Dykman - Host**