



**PHYSICS**  
**COLORADO STATE UNIVERSITY**



## **PRSE Magnetism Seminar**

**Mechanics of Magnetic Solitons**

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November 9th at 2 p.m.  
Engineering E106

### **Abstract**

Magnets host a variety of solitons that are stable for topological reasons: domain walls, vortices, and skyrmions, to name a few. Because of their stability, topological solitons can potentially be used for storing and processing information. This motivates us to build economic, yet realistic models of soliton dynamics in magnets. E.g., a domain wall in a ferromagnetic wire can be pictured as a bead on a string, which can move along the string and rotate about its axis. Its mechanics is counterintuitive: it rotates when pushed and moves when twisted. I will review basic models of ferro- and antiferromagnetic domain walls in one dimension and give examples from higher dimensions.

