

## **Mechanics of Magnetic Solitons**

Oleg Tchernyshyov (Johns Hopkins University)

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 magnetic solitons in one and two dimensions, including classic examples as well as new results.