

Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Magnetic friction between a Potts wedge and a Potts block in three dimensions¹ LINJUN LI, MICHEL PLEIMLING, Virginia Tech — Magnetic systems, whose surfaces are coupled by boundary spins, experience magnetic friction if one system is moving with a relative velocity along the coupled surface. In our current research, we focus on systems consisting of one three-dimensional (3D) magnetic Potts wedge and one 3D magnetic Potts block. For cases where the total number of Potts states is equal to 2 or 9, we systematically study the effects of different interface coupling strengths, relative velocities, and wedge sizes, using numerical simulations. We find that the magnetic friction between the wedge tip and the block surface can change the local magnetic fluctuations on the surface of the block as well as at the tip of the wedge.

¹This work is supported by the US National Science Foundation through grant DMR-1205309.

Michel Pleimling
Virginia Tech

Date submitted: 07 Nov 2013

Electronic form version 1.4