Prof. Susan Kempinger

North Central College

Friday, October 6, 11:00 am. Osborne A204

Modified Perpendicular Artificial Spin Ice

Artificial spin ice (ASI) is a highly customizable materials platform used for studying fundamental properties of interaction and frustration in magnetic systems, with potential applications in novel computing architectures. Perpendicular ASI systems are advantageous because they have isotropic interactions between magnetic elements and high perpendicular stray fields that could be used for magnetic imprinting. These perpendicular systems can be studied using magneto-optical Kerr effect microscopy, allowing for complete microstate mapping *in situ* with an applied field. They can also be modeled using micromagnetic simulations to provide a more detailed analysis of the magnetic state of the elements. We are currently interested in characterizing modifications to perpendicular ASI in the form of connections between neighboring elements and soft magnetic underlayers. These modifications will allow us to selectively control the final state of the array after demagnetization and could aid in functionalizing these systems for future technological applications. I will present on simulations and initial results on fabricated samples.

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Short Bio

Susan Kempinger is an Assistant Professor of Physics at North Central College, a primarily undergraduate institution in the Chicagoland area. She studies patterned magnetic systems using polarized light microscopy. She completed her Ph.D. at Penn State University. When she isn't working with magnetic systems, she is involved with the Physics Education program and preparing future high school physics teachers.