

Colloquium
Physics Department
Temple University



Magnetism in the Spotlight of Polarized X-rays

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Nanomagnetism research which aims to understand and control magnetic properties and behavior on the nanoscale through proximity and confinement, is currently shifting its focus to emerging phenomena occurring on mesoscopic scales. New avenues to control magnetic materials open up through enhanced complexity and new functionalities, which can impact the speed, size and energy efficiency of spin driven applications.

Magnetic soft x-ray spectro-microscopies provide unique characterization opportunities to study the statics and dynamics of spin textures in magnetic materials combining x-ray magnetic circular dichroism (XMCD) as element specific, quantifiable magnetic contrast mechanism with spatial and temporal resolutions down to fundamental magnetic length and time scales.

I will review recent achievements and future opportunities with magnetic x-ray spectro-microscopies. Examples will include the dynamics of magnetic vortex structures with potential application to novel magnetic logic elements, magnetic spectromicroscopy of domain walls, and approaches to image the 3D magnetic domain structures in rolled-up thin films with x-ray tomography.

Monday, April 25, 2016, 3pm to 4pm
SERC Room 116