

# On-line SPICE-SPIN+X Seminars



**Wednesday, 26th May 2021, 15:00 (German Time)**

The seminar will be via Zoom ([Meeting ID: 837 1602 0983](#)) and live streamed in the SPICE YouTube Channel.



**James Analytis,**

*University of California*

## **Antiferromagnetic Switching Driven by the Collective Dynamics of Correlated Spin Textures**

The theory behind the electrical switching of antiferromagnets is premised on the existence of a well-defined broken symmetry state that can be rotated to encode information. A spin glass is in many ways the antithesis of this state, characterized by an ergodic landscape of nearly degenerate magnetic configurations, choosing to freeze into a distribution of these in a manner that is seemingly bereft of information. Here, we show that the coexistence of spin glass and antiferromagnetic order allows a novel mechanism to facilitate the switching of the antiferromagnet  $\sim \delta$ , rooted in the electrically-stimulated collective winding of the spin glass. The local texture of the spin glass opens an anisotropic channel of interaction that can be used to rotate the equilibrium orientation of the antiferromagnetic state. The use of a spin glass' collective dynamics to electrically manipulate antiferromagnetic spin textures has never been applied before, opening the field of antiferromagnetic spintronics to many more material platforms with complex magnetic textures.