

On-line SPICE-SPIN+X Seminars



Wednesday, 22nd February 2023, 15:00 (CET)

The seminar will be via Zoom ([Meeting ID: 884 3534 3263](#)) and live streamed in the SPICE YouTube Channel.

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Exploring spintronics at unconventional hybrid interfaces



Controlled manipulation of a system allows for systematic investigation of the underlying interactions and phenomena. Simultaneously, tunability also enables the development of novel materials systems and devices customized for specific applications. Here, we will focus on materials systems that conventionally have not been used as active components in spintronic devices. We will explore the impact of strain on the antiferromagnetic domain structure via magneto-elastic coupling¹. Furthermore, we will delve into hybrid molecule-magnetic interfaces. Molecules offer a unique way of controlling and varying the structure at the interface making it possible to precisely tune the spin injection and diffusion by molecular design². In particular, chirality has gained recent interest in the context of the chiral-induced spin selectivity effect³. Here, we will explore signatures of spin filtering at a non-magnetic chiral molecule-metal interface paving the path toward novel hybrid spintronics.

[1] Wittmann, A. et al. Role of substrate clamping on anisotropy and domain structure in the canted antiferromagnet α -Fe₂O₃. *Phys. Rev. B* 106, 224419 (2022).

[2] Wittmann, A. et al. Tuning Spin Current Injection at Ferromagnet-Nonmagnet Interfaces by Molecular Design. *Phys. Rev. Lett.* 124, 027204 (2020).

[3] Naaman, R., Paltiel, Y. & Waldeck, D. H. Chiral molecules and the electron spin. *Nat. Rev. Chem.* 3, 250–260 (2019).