

Spin-Crossover Complexes on Conducting Substrates: Recent Lessons Learned

Mark W. Meisel

Department of Physics and National High Magnetic Field Laboratory, University of Florida

In collaboration with Dan Talham and his group in UF Chemistry, the photocontrolled magnetic response of coordination polymer heterostructures has been extended up to 125 K [1]. Extensions to 200 K and higher are achievable if the photoinduced lattice distortions of the photo-active constituent of the heterostructure can be shifted to this temperature range. With the need to identify photo-active candidates whose lattice distortions persist to high temperatures (> 200 K), our recent research has focused on studies of spin crossover complexes on substrates. This direction was motivated by a report of the coexistence of high-spin and low-spin configurations of the second layer of a spin crossover complex on Au [2]. This direction of research employs STM (scanning tunneling microscopy) techniques and is receiving considerable attention [3]. A conjecture, which is now receiving experimental attention, will be described and provides an avenue for computational studies to guide the experimental directions.

- [1] O. N. Risset, T. V. Brinzari, M. W. Meisel, D. R. Talham, *Chem. Mater.* 27 (2015) 6185-6188.
- [2] A. Pronschinske, Y. Chen, G.F. Lewis, D.A. Shultz, A. Calzolari, M.B. Nardelli, D.B. Dougherty, *Nano Lett.* 13 (2013) 1429-1434.
- [3] K. Bairagi, O. Iasco, A. Bellec, A. Kartsev, D. Li, J. Lagoute, C. Chacon, Y. Girard, S. Rousset, F. Miserque, Y. J. Dappe, A. Smogunov, C. Barreteau, M. Boillot, T. Mallah, V. Repain, *Nature Comm.* 7 (2016) 12212.