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【514】From micro to femto: Towards combining spatial and temporal resolution for ARPES

Tuesday 28 June 2022 18:00 (30 minutes)

I will introduce our recent efforts exploiting some of the varied facets of ARPES. Exploiting synchrotron micro-ARPES we extracted the electronic structure of the spatially competing low-temperature phases in $IrTe_2$. Comparison with theory provides evidence for a molecular-type local bonding mechanism. Using femtosecond time-resolved ARPES at 21 eV photon energy we could extend band mapping into the excited states above the Fermi level, and additionally resolve a detailed reaction pathway during the photo-induced phase transition in In nanowires on Si(111). Simulations constrained by our measurements reveal the ultrafast dynamics of chemical bonds. I will briefly discuss possibilities for combining a micro-focussed XUV source with femtosecond dynamics throughout the Brillouin zone.

Author: NICHOLSON, Chris

Presenter: NICHOLSON, Chris

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