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**Nanoscale conductivity measurements on organic thin films and interfaces** JUSTIN WELLS, NTNU, Trondheim, Norway, FEI SONG, PHILIP HOFMANN, iNANO and ISA, Aarhus Uni., Denmark. — Despite the importance of conductance measurements to bulk solid state physics, there is poor understanding of surface and nano-scale conductance - despite the relevance to smaller devices and the development of novel concepts for electronics. Of particular interest in this respect are self-organized organic nano-structures, which offer a virtually unlimited design freedom. Electron delocalization and transport in such systems is of great current interest. In this work, we utilise a recently developed nanoscale multi-contact mono-cantilever probe with a minimum spacing of 250 nm. We measure the conductivity of the Si(111)( $\sqrt{3} \times \sqrt{3}$ )Ag surface, and the corresponding changes in the conductivity which occur when organic absorbates are present. By increasing the coverage from sub-monolayer to multilayer, it is possible to see doping of the underlying Ag layer, as well as conduction through the organic film. These measurements are supported by PES and NEXAFS studies, and thus can be interpreted in terms of charge transfer and geometric structure.

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