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Flicker Noise as a Probe of Electronic Interaction at Metal-Organic Interfaces OLGUN ADAK, Department of Applied Physics and Applied Mathematics, Columbia University, New York, NY, ETHAN ROSENTHAL, Department of Physics, Columbia University, New York, NY, JEFFERY MEISNER, Department of Chemistry, Columbia University, New York, NY, ERICK ANDRADE, ABHAY PASUPATHY, Department of Physics, Columbia University, New York, NY, COLIN NUCKOLLS, Department of Chemistry, Columbia University, New York, NY, MARK HYBERTSEN, Center for Functional Nanomaterials, Brookhaven National Labs, Upton, NY, LATHA VENKATARAMAN, Department of Applied Physics and Applied Mathematics, Columbia University, New York, NY — Understanding the nature of the charge transport at metal-organic interfaces is fundamental for achieving functional organic electronic devices. The charge transport at such interfaces can be achieved by through-bond and through-space interaction. While through-bond interaction dominates the electronic coupling in most systems, through-space interaction plays important role when through-bond interaction is suppressed, for example, due to quantum interference. In this talk, we first shed light into the origin of the flicker noise phenomenon in single molecule junctions and show how it can be used to distinguish between through-bond and through-space interaction at metal-organic interfaces using a scanning-tunneling microscope based break junction technique.

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