

Abstract Submitted
for the MAR15 Meeting of
The American Physical Society

Revealing intra-molecular transient dynamics in junctions by mean of Noise spectroscopy MAICOL OCHOA, University of California San Diego, La Jolla CA 92093, USA, YORAM SELZER, Tel-Aviv University, Tel Aviv 69978, Israel, URI PESKIN, Technion-Israel Institute of Technology, Haifa 32000, Israel, MICHAEL GALPERIN, University of California San Diego, La Jolla CA 92093, USA — Recent theoretical investigations have shown that Ultrafast Laser Pulse Pair Sequences applied to molecular junctions and *dc* current measurements can be used to detect and quantify intra-molecular processes that occur in the picosecond timescale during the transient regime. In this work, we have continued these investigations and found that while averaged current measurements can capture dynamics directly related to electron transport, one needs to go beyond and consider averaged Noise measurements in order to detect intra-molecular processes not directly participating in the electron transport. In this talk, we will introduce the formalism for this Noise spectroscopy and illustrate our findings within simple numerical models, displaying time-dependent and average responses in junctions that include destructive interference and circular currents.

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Date submitted: 14 Nov 2014

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