Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

Noise correlations in quasi-1D conductors with different contact geometries[1] A. BELKADI, A.F. ISAKOVIC, Khalifa University - KUSTAR, Abu Dhabi, UAE — We nanofabricated end contacts to mesowires of $NbSe_3$ and tested for the presence of correlations in noise spectroscopy at various temperatures below Peierls transition temperature. We find that for $1/f$-like, broadband noise (BBN), the degree of correlations in transport in two segments along a $NbSe_3$ mesowire can be tuned with electric field and temperature. For standard, bottom/top contacts geometries, we see a limited degree of correlations for narrow band noise (NBN) (typically 20-30%, except for a limited range of temperatures), but we also see that end contact geometry enhances the degree of correlations for NBN signal (closer to 50%). We believe this phenomenon is related to a better control of the CDW transport, such as weaker temperature dependence of condensate current. We also explore the issues of the overall energy transfer through such contacts.

[1]The material growth and some of the measurements were done in Prof. R. E. Thorne lab at Cornell University. We acknowledge recent support from ATIC-SRC through contract 2011-KJ-2190 and KUSTAR.

A. Belkadi
Khalifa University - KUSTAR, Abu Dhabi, UAE

Date submitted: 15 Dec 2011 Electronic form version 1.4