

Abstract Submitted  
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**Counting Statistics in Nanoscale Junctions from First Principles**

YU-CHANG CHEN, YU-SHEN LIU, Department of Electrophysics, National Chiao Tung University — We present first-principle calculations for moments of the current up to the third-order atomic-scale junctions. The quantum correlations of the current calculated in terms of wave functions obtained self-consistently within the static density functional theory are also demonstrated herein. Relationships between the conductance, the second, and the third moment of the current for carbon atom chains of various lengths bridging two metal electrodes in the linear and non-linear regimes are investigated. The conductance, the second-, and the third-order Fano factors exhibit odd-even oscillation with the number of carbon atoms. The third-order Fano factor is positively correlates with conductance.

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