

Measurement of voltage-dependent electronic transport across amine-linked single molecular wire junctions

We present a new technique to measure a statistically defined current-voltage curve and apply this method to three molecules- 4,4'-Diaminostilbene, Bis-(4-aminophenyl)acetylene, and 1,6-diaminohexane. We find that 4,4'-Diaminostilbene exhibits the largest increase in differential conductance as a function of applied bias. This indicates that the predominant transport channel for 4,4'-Diaminostilbene (the highest occupied molecular orbital) is closer to the Fermi level of the metal than that of the other molecules, consistent with the trends observed in the molecular ionization potential.

