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Effects of Pauli blockade on single-molecule conduction

The conduction of electrons through devices made of single molecules has been well studied using Hückel theory in a one-electron picture. The introduction of many-electron effects into this model introduces dramatic changes in conductivity which are simply understood in terms of a 'Pauli blockade' effect, in which electrons are prevented from travelling through orbitals which are already occupied. This talk provides simple analytical expressions derived from spectral decomposition of characteristic polynomials, within the essentially graph theoretical source-sink potential method.