
Single molecules interrogated in solid-state devices

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Abstract

One of the challenging goals of molecular electronics is to understand and master single-molecule electronic devices. Based on recent progress employing three terminal solid-state devices it is possible to interrogate a single molecule in a metal gap by direct observation of vibrational, electronic and magnetic spectral details. The talk will focus on new insight into the physics and chemistry of such molecules in particular the influence of metal electrodes on the molecular energy spectrum, controlling molecular spin by external electrical fields, and progress towards chemical preparation of single molecule devices and molecular devices more broadly in which the molecule/metal interface can be controlled with sufficient precision.

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