

Optical probe of quantum shot noise reduction at a single atom contact

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Visible and infra-red light emitted at a Ag-Ag(111) junction has been investigated from tunneling to single atom contact conditions with a scanning tunneling microscope. The light intensity varies in a highly nonlinear fashion with the conductance of the junction and exhibits a minimum at conductances close to the conductance quantum. The data is interpreted in terms of current-noise at optical frequencies, which is characteristic of partially open transport channels.