Abstract Submitted
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Shot noise measurements on a single molecule JAN M. VAN RUITENBEEK, OREN TAL[1], Kamerlingh Onnes Laboratorium, Leiden University, Leiden, Netherlands, MICHAEL KRIEGER TEAM, DARKO DJUKIC TEAM, BAS LEERINK TEAM — Fabrication of molecular junctions with diverse and controlled functionality requires a fundamental understanding of the relation between the structure and conductance properties of these junctions. We address this issue using simple organic molecules (e.g., hydrogen, carbon monoxide, and benzene) as a molecular bridge between two Pt electrodes formed by the mechanical break junction technique. Shot noise is used to reveal the number of conductance channels through the molecular junction, and their probabilities, while point contact spectroscopy yielded its characteristic vibration modes. This diverse information combined with theoretical calculations allows us to present a detailed picture of the relation between the conductance and the junction structure.

[1]The speaker

Jan M. van Ruitenbeek
Kamerlingh Onnes Laboratorium, Leiden University, Leiden, Netherlands

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