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Charge transport in mechanically controlled single-molecule break-junctions YOUNGSANG KIM, FLORIAN STRIGL, HANS-FRIDTJOF PERNAU, ELKE SCHEER, University of Konstanz, Germany, HYUNWOOK SONG, TAKHEE LEE, Gwangju Institute of Science and Technology, Korea, THOMAS HELLMUTH, FABIAN PAULY, Karlsruhe Institute of Technology, Germany, LINDA A. ZOTTI, JUAN CARLOS CUEVAS, Universidad Autónoma de Madrid, Spain — We present inelastic electron tunneling spectroscopy (IETS) measurements carried out on single molecules incorporated into a mechanically controllable break-junction (MCBJ) at low temperature. The single molecules contacted with a MCBJ or with a STM show various conductance values under stretching depending on the contact geometry and the molecular conformation (*e.g.*, *trans* or *gauche*). In such single-molecule devices, the metal of electrodes (*e.g.*, gold or platinum) and anchoring groups (*e.g.*, thiol (-SH) or amine ($-NH_2$)) can also significantly influence the charge transport through the single molecules. Here we demonstrate how these individual aspects influence the conductance properties of single-molecule junctions.

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