

Publication**A Tripodal Molecule on a Gold Surface : Orientation-Dependent Coupling and Electronic Properties of the Molecular Legs****JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)****ID** 2367915**Author(s)** Lukas, Maya; Dössel, Kerrin; Schramm, Alexandrina; Fuhr, Olaf; Stroh, Christophe; Mayor, Marcel; Fink, Karin; v. Löhneysen, Hilbert**Author(s) at UniBasel** [Mayor, Marcel](#) ;**Year** 2013**Title** A Tripodal Molecule on a Gold Surface : Orientation-Dependent Coupling and Electronic Properties of the Molecular Legs**Journal** ACS Nano**Volume** 7**Number** 7**Pages / Article-Number** 6170-6180**Keywords** molecular electronics, multiterminal molecule, single-molecule junction, submolecular resolution, scanning tunneling spectroscopy, density functional theory

The realization of molecular electronics demands a detailed knowledge of the correlation between chemical groups and electronic function. It has become obvious during the last years that the conformation of a molecule and its coupling to the connecting electrodes plays a crucial role in its conductance behavior and its electronic function, e.g., as a switch. Knowledge about these relationships is therefore essential for future design of molecular electronic building blocks. We present a new three-dimensional molecule, consisting of three identical molecular wires connected to a headgroup. Due to the well-defined spatial arrangement of the molecule in a nonplanar geometry, it is possible to investigate the conductance behavior of these wires with respect to their position and coupling to the surface electrode with the submolecular resolution of a scanning tunneling microscope. The experimental findings are supported by calculations of the electronic structure and conformation of the molecule on the surface by density functional theory with dispersion corrections.

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