# Addressing a lattice of rotatable molecular dipoles with the electric field of an STM tip

**JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)**

**ID** 4634292
**Author(s)** Frauhammer, Timo; Gerhard, Lukas; Edelmann, Kevin; Lindner, Marcin; Valasek, Michal; Mayor, Marcel; Wulfhekel, Wulf
**Author(s) at UniBasel** Mayor, Marcel ;
**Year** 2021
**Title** Addressing a lattice of rotatable molecular dipoles with the electric field of an STM tip
**Journal** Physical Chemistry Chemical Physics
**Volume** 23
**Number** 8
**Pages** / **Article-Number** 4874-4881
Functional molecular groups mounted on specific foot structures are ideal model systems to study intermolecular interactions, due to the possibility to separate the functionality and the adsorption mechanism. Here, we report on the rotational switching of a thioacetate group mounted on a tripodal tetraphenylmethane (TPM) derivative adsorbed in ordered islands on a Au(111) surface. Using low temperature scanning tunnelling microscopy, individual freestanding molecular groups of the lattice can be switched between two bistable orientations. The functional dependence of this rotational switching on the sample bias and tip-sample distance allows us to model the energy landscape of this molecular group as an electric dipole in the electric field of the tunnelling junction. As expected for the interaction of two dipoles, we found states of neighbouring molecules to be correlated.
**Publisher** Royal Society of Chemistry
**ISSN/ISBN** 1463-9076 ; 1463-9084
**URL** http://dx.doi.org/10.1039/d0cp06146h
**edoc-URL** https://edoc.unibas.ch/85429/
**Full Text on edoc** Available;
**Digital Object Identifier DOI** 10.1039/d0cp06146h
**PubMed ID** http://www.ncbi.nlm.nih.gov/pubmed/33616122
**ISI-Number** 000625306100039 PubMed ID33616122 ISSN1463-9076 eISSN1463-9084
**Document type (ISI)** Journal Article