

Physikalisches Kolloquium



Thursday, 07.07.2016, 17:15, HS 100
 Reception with coffee & cookies 16:45

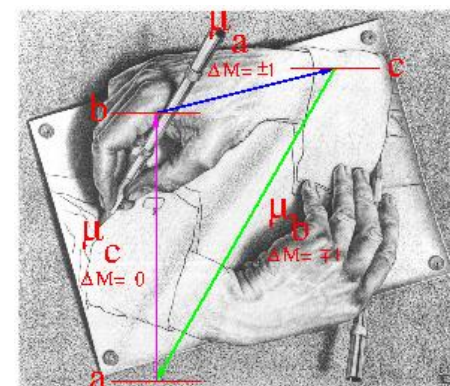
Prof. Dr. Jens-Uwe Grabow, Leibniz Universität Hannover:

Flexible and Chiral Molecules' Rotation Signals

Abstract

All molecular system come with their own set of challenges for rotational spectroscopy, theoretically and experimentally: Multiple internal interactions are causing complicated energy level schemes and the resulting spectra will be rather difficult to predict theoretically. Experimentally, these spectra are difficult to assess and assign. With today's broad-banded microwave (MW) chirp techniques, finding and identifying such spectral features have lost their major drawback of being very time consuming for many molecules. The unrivalled resolution of advanced fast-passage spectrometers, previously only available for narrow-banded MW pulse techniques, now allows to tackle - at the highest precision – very subtle interactions.

Molecular charge distribution, properties of the chemical bond, details on internal dynamics and intermolecular interaction, the (stereo-chemical) molecular structure (including the possibility of their spatial separation) as well as potential evidence for tiny yet significant interactions encode their signature in molecular rotation spectra. Ongoing exciting technical developments promise rapid progress. The talk presents recent examples from Hannover, new directions, and an outlook at the future.



All of you interested in physics are cordially invited!