

Abstract Submitted
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PTCDA in Helium Nanodroplets: Doping Characterization and Spectroscopic Investigations with a Pulsed Helium Nanodroplet Beam

AARON LAFORGE, MARKUS MUELLER, FRANK STIENKEMEIER, University of Freiburg — Organic semiconductors like PTCDA have gained considerable interest because of their optoelectronic properties. To reveal electronic structures we utilize Helium Nanodroplet Isolation (HENDI) Spectroscopy as well established method to characterize single molecules, but also molecular complexes inside a cold (370mK) and weak interacting environment. We present PTCDA doping characteristics for a pulsed helium nanodroplet beam either measured by Laser Induced Fluorescence (LIF) or by Quadrupole Mass Spectrometry (QMS). The comparison between time resolved LIF and QMS intensities gives information about the doping within one helium nanodroplet pulse. Furthermore, spectroscopic results from LIF excitation and fluorescence emission measurements for single PTCDA molecules attached to helium nanodroplets give insight into the vibrational structure of the electronic ground state and the first electronically excited state.

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