OPTEXC

UNIVERSITÄT BAYREUTH

invited speaker

Structure-property relationship in binary blends: Tuning the photophysics of molecular materials*

One of the fundamental questions in condensed matter is that of the structure-property relationship, which we will discuss using molecular materials. Pentacene (PEN) is the prototypical small-molecule semiconductor, even exhibiting singlet fission (SF). Here we present a comprehensive investigation how the photophysics of PEN can be tuned in binary blends (PEN:XXX). To this end, we study a wide range of systems PEN:XXX with different structural motifs and different levels of coupling of XXX (=DIP, 5PH, 6PH, TIPS-PEN, TET, 3P, C60, ADT, HEX, DNTT) with PEN. These include unconventional structural motifs, such as a frozen-smectic structure, as well as different levels of phase separation vs. intermixing / solid solutions and co-crystal formation. The resulting optical properties range from “dissolution” of PEN in picene (PIC) and robust SF (Broch, Nature Comm. 2018) to strong coupling and charge transfer (CT) with perfluorinated PEN (PFP) and essentially all scenarios in between.

Date: Monday, 30th September 2024 |

Time: 3 pm| Room: S80, NW II

Prof. Dr. Dr. h. c. Frank Schreiber

Institut für Angewandte Physik

Universität Tübingen