

STEEP UP Workshop

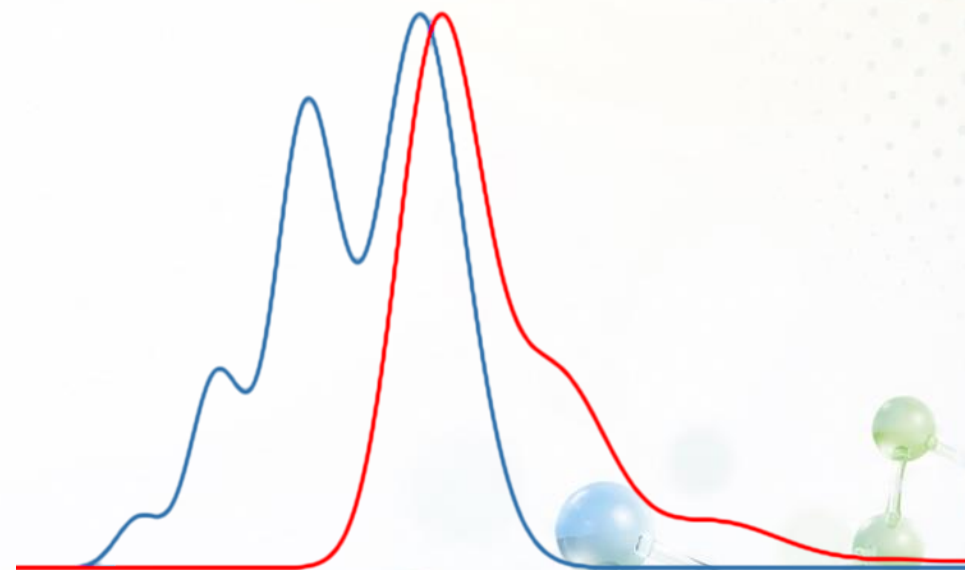


Tuesday, October 6, 2026

Molecular Design Meets Self-Assembly: Pathways to Organic Electronic Devices



Venue: Leibniz-IPF Dresden



Prof. Denis Jacquemin



Prof. Koen Vandewal



Dr. Johannes Benduhn



Dr. Martin Presselt



Dr. Clément Cabanetos

Program

9:00 – 9:10	Opening, Dr. Petra Uhlmann and Dr. Eva Bittrich, IPF
9:10 – 09.55	Prof. Denis Jacquemin , U Nantes Modelling of fluorescence and excited-state absorption of organic dyes with PCM-TD-DFT
09:55 – 10:20	Mohamed Bouajhine , U Mons A theoretical study on the impact of side chain engineering on molecular packing and optical properties of small molecule OPV materials
10:20 – 10:45	Dr. Lukasz Kielesinski , IOC PAS The synthesis of DPNDs and pyrrolo-pyrrole derivatives for the potential applications in organic solar cells
10:45 – 11:05	Coffee break
11:05 – 11:50	Dr. Martin Presselt , Leibniz-IPHT Controlling aggregation and supramolecular structures at interfaces
11:50 – 12:35	Dr. Johannes Benduhn , IAP TU Dresden New insights into organic semiconductors for optical photodetectors

12:35 – 13:30	Lunch break with warm buffet
13:30 – 14:15	Prof. Koen Vandewal , U Hasselt New device architectures for organic opto-electronics and their performance limitations
14:15 – 15:00	Dr. Clement Cabanetos , U Angers Dye hard: design and exploration of new rylene imides
15:00 – 15:30	Coffee break
15:30 – 15:55	Dr. Arthur H. G. David , MOLTECH-Anjou Supramolecular engineering of acceptor–donor–acceptor π -conjugated molecules enabling J-aggregation for steep low-energy absorption
15:55 – 16:20	Sascha Bartosch , Leibniz-IPF The aggregation of DPND dyes in the solid state studied by NMR spectroscopy
16:20 – 17:00	Dr. Ziwei Zhou , Leibniz-IPF From achiral building blocks to chiral plasmonic nanostructures
17:00	Closing

The project **Steep Up**

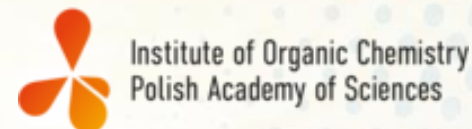
Steep absorption with supramolecular self-assembled functional dyes for vacuum-deposited organic solar cells

The European research project STEEP UP combined supramolecular modelling (U Mons), organic synthesis (Moltech-Anjou and IOC PAS), and advanced characterization of materials and devices (Heliatek and U Hasselt) to design small π -conjugated dyes with controlled energy levels and steep absorption edges.

Particular attention was given to J-like aggregation, where molecular organization in the solid state can improve absorption and transport properties.

The Leibniz Institute of Polymer Research Dresden (IPF) coordinated the project and contributed expertise in morphology analysis and thin-film characterization.

By linking molecular design with film structure and function, STEEP UP established design rules for stable, self-assembled novel dye materials with steep absorption.



06/2023 – 12/2026

STEEP UP was selected in the Joint transnational Call 2022 of M-ERA.NET 3, an EU-funded network (Horizon 2020 grant agreement No 958174). The project was funded by the Saxon State Ministry for Science, Culture and Tourism, Saxony, Germany (SMWK, grants 100688123 and 100687465), the National Science Centre, Poland (NCN, grant 2022/04/Y/ST4/0015), the Agence Nationale de la Recherche, France (ANR, grant ANR-23-MER3-0006-01), and the Fonds de la Recherche Scientifique, Belgium (FNRS, grant PINT-MULTI-R.8001.23-5/7).