

THE PHYSICS COLLOQUIUM

Thursday 14 March 2024, 4:00 p.m.
Nijenborgh 4, Lecture Hall 5111.0080

COMPETITIVE PHOTOPHYSICAL PATHWAYS IN ORGANIC CHROMOPHORE SYSTEMS

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Organic molecular and polymer chromophores provide a broad range of possibilities for developing next-generation light-energy conversion applications. These π -conjugated materials exhibit high extinction coefficients, ease of synthetic tunability, and desirable semiconducting properties, which make them ideal for use in photovoltaics, solar fuel production, and energy storage. However, these materials exhibit complex potential energy landscapes and mixed electronic states. Photoactive processes such as light-harvesting, energy transport, and charge separation depends on factors such as structural disorder and intermolecular coupling interactions, which can furthermore be mediated by the environment.

It is essential to understand the interplay between molecular structure and photophysical properties in order to design and optimize new materials for energy conversion applications. Chromophore aggregation and intermolecular coupling effects play a significant role in mediating competitive photophysical pathways and dynamics. Molecular chromophore systems aggregate via π -stacking interactions, leading to a mixture of Coulombic and charge-transfer couplings.

Our work explores the relationship between interchromophore coupling and photophysical dynamics in a variety of systems, from the molecular scale to multichromophore assemblies, and also in optoelectronic devices.

Join us for coffee starting 3:30 p.m. Refreshments will be served after the lecture.

For more information contact the host: Anastasia Borschevski (a.borschevski@rug.nl)

Website: <http://www.rug.nl/research/vsi/colloquia/>