



EINLADUNG

zum Vortrag von
Dr. Eleonore Tacke

Institut für Organische Chemie, Universität Wien

From CinNaphts to PyrAtes - Designing the Next Generation of Large Stokes Shift Dyes for Biological Imaging

am Dienstag, 2. Juni 2026, um 17:30 Uhr

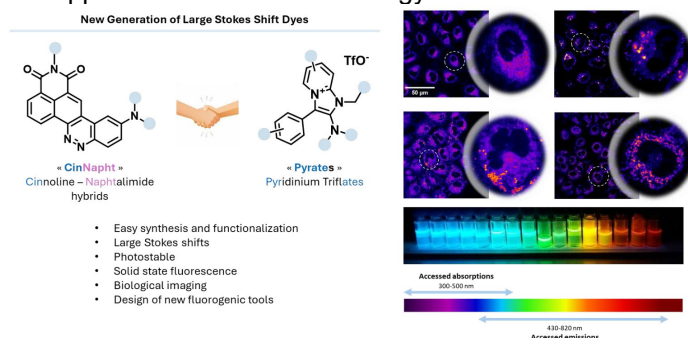
Ort: Lise-Meitner-Hörsaal, Fakultät für Physik, Universität Wien,
1090 Wien, Strudlhofgasse 4 / Boltzmanngasse 5, 1. Stock

Barrierefreier Zugang: Boltzmanngasse 5, Lift, 1. Stock rechts über den Gang zum Hintereingang des Hörsaals

Abstract:

Fluorescence microscopy has continuously evolved over the past decades, driven by the growing demand for advanced tools in optical molecular imaging. In this context, the development of fluorophores that combine high performance with structural modularity remains a key challenge. In particular, hybrid dyes exhibiting large Stokes shifts are highly attractive for biological imaging, as they minimize self-absorption and enhance signal-to-noise ratios in complex environments. A first part of the presentation will be devoted to the development of hybrid fluorophores based on fused cinnoline/naphthalimide scaffolds, termed CinNapht dyes.

1. Emphasis will be placed on the design of synthetically accessible and tunable molecular platforms, enabling late-stage functionalization and rapid diversification. These systems display a combination of desirable photophysical properties, including red-shifted emission, large Stokes shifts, strong solvatochromism, and high chemo- and photostability, making them promising candidates for cellular imaging applications such as organelle staining. 2 This work contributes to the broader emergence of cinnoline-based hybrid dyes as a versatile class of fluorophores for bioimaging. 3 A second part will focus on the discovery of a new family of fluorescent pyridinium-based dyes (PyrAtes), which emerged from unexpected reactivity uncovered during studies on amide functionalization. 4 A modular synthetic strategy from readily available starting materials provides access to a diverse library of analogues. These fluorophores also exhibit large Stokes shifts, tunable emission, and strong environmental sensitivity. In addition, their scaffold features a versatile functional handle, enabling straightforward conjugation to bioactive molecules⁵ and opening new opportunities for the design of fluorogenic OFF-ON probes for the detection of enzymatic activities.⁶ Together, these studies illustrate how synthetic organic chemistry can enable the discovery of new fluorescent scaffolds, bridging fundamental reactivity and applications in chemical biology.



CHEMISCH-PHYSIKALISCHE GESELLSCHAFT

c/o Universität Wien, Fakultät für Physik, 1090 Wien, Boltzmanngasse 5, Austria

Generalsekretär: Christl Langstadlinger

Tel.: +43-(0)1-4277/51108 - Mobil: 0664-60277 51108

E-Mail: christl.langstadlinger@univie.ac.at - <http://www.cpg.univie.ac.at>

ZVR-Zahl: 513907440

Konto: Bank Austria - IBAN: AT22 1100 0086 4440 8000 - BIC: BKAUATWW