

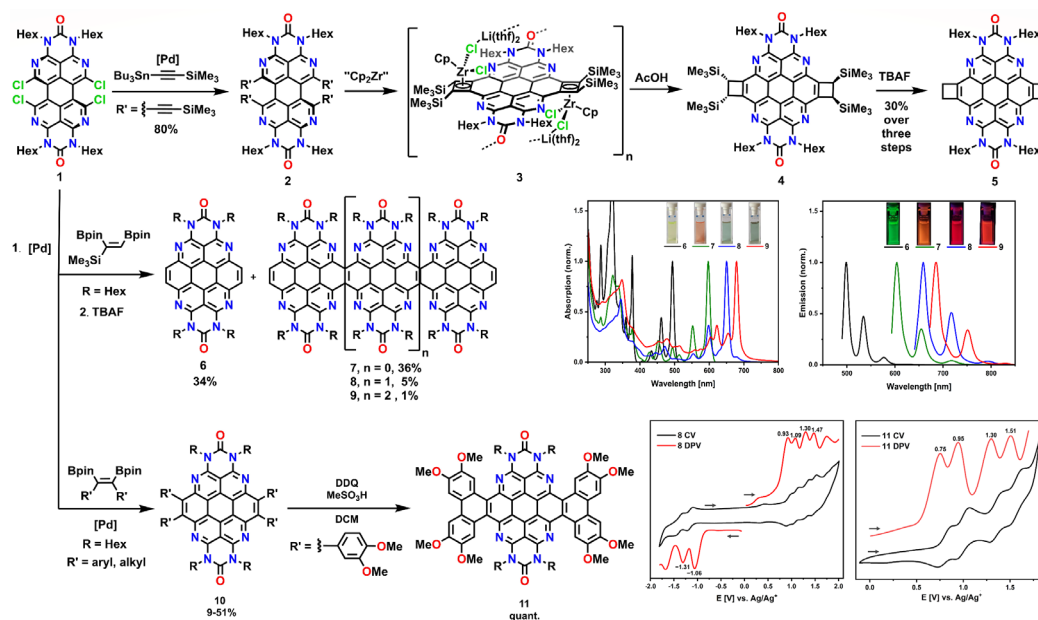
# Tetraazacoronenes

Robert Eichelmann, Daniel Rippel, Joachim Ballmann, Lutz H. Gade\*

Heidelberg University, Institute of Inorganic Chemistry,  
Im Neuenheimer Feld 270, Heidelberg, Germany

eichelmann@stud.uni-heidelberg.de, \*lutz.gade@uni-heidelberg.de

The synthesis and characterization of *N*-substituted coronene derivatives and their laterally  $\pi$ -expanded congeners is presented. Recently, we have employed “*N*-doping” of PAHs as a means to modify their electronic properties while retaining their molecular shapes to the field of perylene chemistry.<sup>[1]</sup> Starting from a bay-chlorinated OAPPDO (**1**), tetraazacoronenes are accessible via fourfold Suzuki-Miyaura cross coupling or Zr-mediated cyclization.<sup>[2]</sup> Using bis(pinacolatoboryl)vinyl derivatives as ethylene building blocks,<sup>[2,3]</sup> the azacoronene parent compound and its corresponding condensed dimer, trimer and tetramer have been synthesized. All tetraazacoronenes display highly resolved UV/Vis absorption bands, pronounced fluorescence properties and an increased density of accessible redox states. This approach should allow the systematic investigation of this new class of functional dyes both in terms of their photophysics and their properties as molecular organic charge carriers.



**Figure 1:** Synthesis and selected optoelectrical properties of tetraazacoronenes.

## References:

- [1] a) T. Wesp, T. Bruckhoff, J. Petry, H. Wadepohl, L. H. Gade, *Chem. Eur. J.* **2022**, *28*, e202200129; b) T. Wesp, P. Valsalan, A. Kochan, M. Hertzog, H. Wadepohl, J. Zaumseil, L. H. Gade, *Chem. Eur. J.* **2022**, *28*, e202202661; c) T. Wesp, T. Bruckhoff, H. Wadepohl, L. H. Gade, *Chem. Eur. J.* **2022**, *28*, e202201706.
- [2] R. Eichelmann, J. Ballmann, L. H. Gade, *Angew. Chem. Int. Ed.* **2023**, *62*, e202309198.
- [3] R. Eichelmann, D. Rippel, J. Ballmann, Lutz H. Gade, *Chem. Commun.* **2023**, *59*, 12136-12139.