B,N-Embedded Helicenes with Narrowband Circularly Polarized Luminescence

Vincenzo Brancaccio, Fangyuan Zhang, Prince Ravat*

University of Würzburg, Institute of Organic Chemistry,
Am Hubland, Würzburg, Germany
vincenzo.brancaccio@uni-wuerzburg.de

Extended aromatic systems bearing 1,4-azaborine subunits have been studied in recent years due to their photochemical properties and their applications as OLED materials; the azaborine-based design allows for a remarkably narrow-band emission and for high quantum efficiency. We further extended the scope of these systems by functionalizing B,N-embedded polycyclic aromatic systems with helically chiral subunits, thus resulting in molecules capable of narrowband circularly polarized luminescence (CPL). By rigidification of the molecular backbone, unprecedented narrowband CPL for a small molecule was achieved.

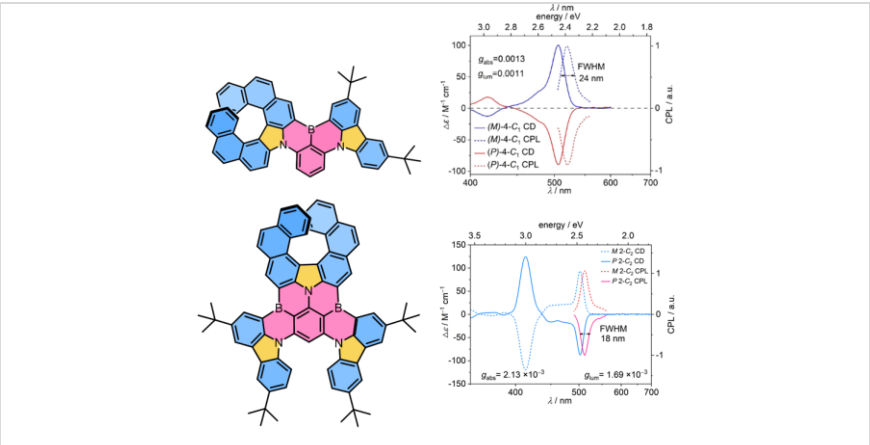

Figure 1: B,N-embedded CPL emitters, featuring subunits with well-defined chirality within the π system, and their CD/CPL spectra

References:

[1] F. Zhang, F. Rauch, A. Swain, T. B. Marder, P. Ravat, *Angew. Chem., Int. Ed.*, **2023**, 62, e202218965