

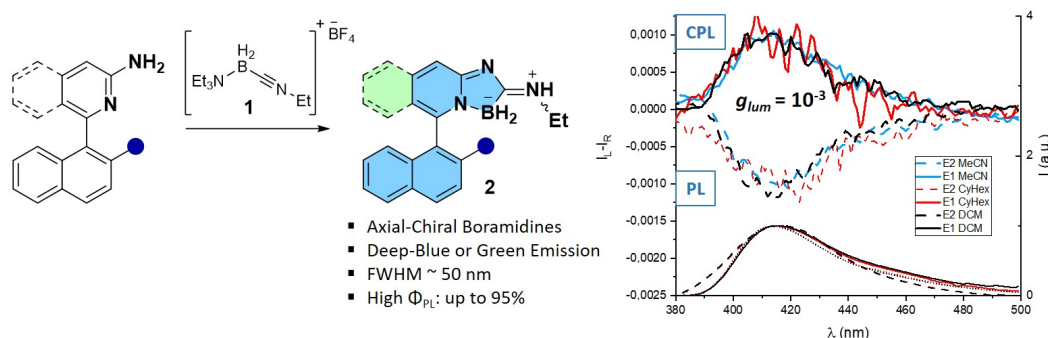
Chiral Boramidines: New Boron-Based Materials with Efficient Circularly Polarized Luminescence

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There is currently significant interest in developing novel organic molecules that exhibit a pronounced circularly polarized luminescence (CPL) due to their possible applications in 3D displays, optical sensors, and optical information storage or encryption.^[1] An elegant approach to modifying the inherent characteristics of the original conjugated π -systems is the incorporation of main group elements into their π -conjugated structures. This strategy leads to the emergence of appealing optoelectronic properties that cannot be achieved with traditional carbon- or metal-based materials.^[2] In this regard, the boron-based conjugated systems have drawn immense attraction because they offer excellent photophysical properties, and have recently been reported as new and exciting thermally activated delayed fluorescence moieties.^[3]

Despite the abundance of boron-based platforms prepared mainly from BX_3 , sodium cyanoborohydride-derived N-alkylnitriliumboranes (**1**) were found to be versatile precursors for the synthesis of novel stable luminescent B-containing heterocycles.^[4] Inspired by the work of Yudin and co-workers,^[4] new chiral boramidine derivatives (**2**) were prepared. These fluorophores show interesting (chir)optical properties, such as the incorporation of triplet state, narrow emission bands, high PLQY, and emission of CPL with remarkable g_{lum} values.



[1] Tadashi Mori, *Circularly Polarized Luminescence of Isolated Small Organic Molecules*; Springer Nature Singapore Pte Ltd.: Gateway East, **2020**.

[2] Masato Hirai, Naoki Tanaka, Mika Sakai, Shigehiro Yamaguchi, *Chemical Reviews*, **2019**, 119, 8291-8331.

[3] Hyuna Lee, Durai Karthik, Raju Lampande, Jae Hong Ryu, Jang Hyuk Kwon, *Frontiers in Chemistry*, **2020**, 8, 373.

[4] Yury Lebedev, Chirag Apte, Susan Cheng, Cyrille Lavigne, Alan Lough, Alán Aspuru-Guzik, Dwight S. Seferos, Andrei K. Yudin, *Journal of American Chemical Society*, **2020**, 142, 13544-13549.