



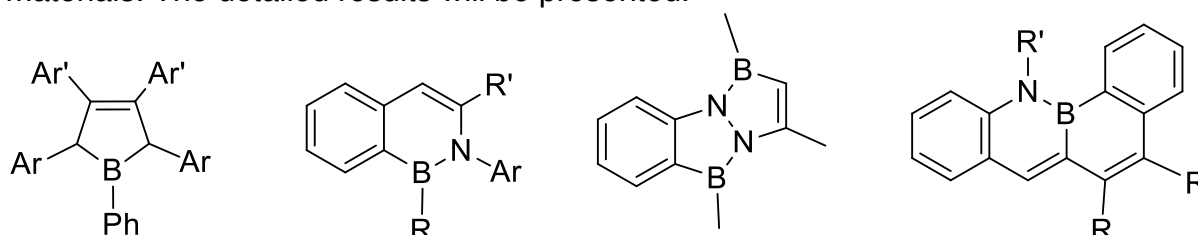
# Synthesis and Electronic Properties of Boron-Embedded Aromatic and Conjugated Molecules

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**Abstract:** Replacement of one or more carbon atoms in aromatic and conjugated organic molecules by boron or other main group elements constitutes an important and useful strategy for the modification of their electronic structures for wide applications. Due to the isoelectronic relationship of B-N and C=C bonds, BN-embedded aromatic and conjugated molecules have attracted a great deal of attention in recent years.<sup>1</sup> It has been shown that these molecules feature the similar molecular geometry but quite different electronic properties with their carbon analogues. However, their synthesis generally required either multiple steps or some hazardous reagents. Thus, the development of concise and efficient routes to these molecules is highly desirable. In the past several years, our group has concentrated on the employment of imines and their derivatives for the synthesis of simple and polycyclic BN aromatic systems by C-H bond cleavage and cross-coupling reactions.<sup>2</sup> Several new types of BN aromatic and conjugated molecules (see scheme 1) have been efficiently obtained in good to excellent yields. DFT calculations and electronic structural studies based on the UV-vis and fluorescent experiments indicated that these molecules are potentially useful as luminescent materials. The detailed results will be presented.



**Scheme 1.** Representative BN Aromatic and Conjugated Molecules

## References

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- 2 (a) H.-N. Huang, Z.-X. Pan, C.-M. Cui, *Chem Commun.* **2016**, 52, 4227; (b) X. -W. Liu, P. -B. Wu, J. -F. Li and C. -M. Cui, *J. Org. Chem.*, **2015**, **80**, 3737; (c) D.-W. Tian, J.-Y. Zhang, C.-M. Cui, *J. Am. Chem. Soc.* **2012**, **134**, 14666.

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