

Synthesis of Bisbenzofuopyrazines by Pd-catalyzed Intramolecular Double Cyclization and Their Room Temperature Phosphorescence Properties

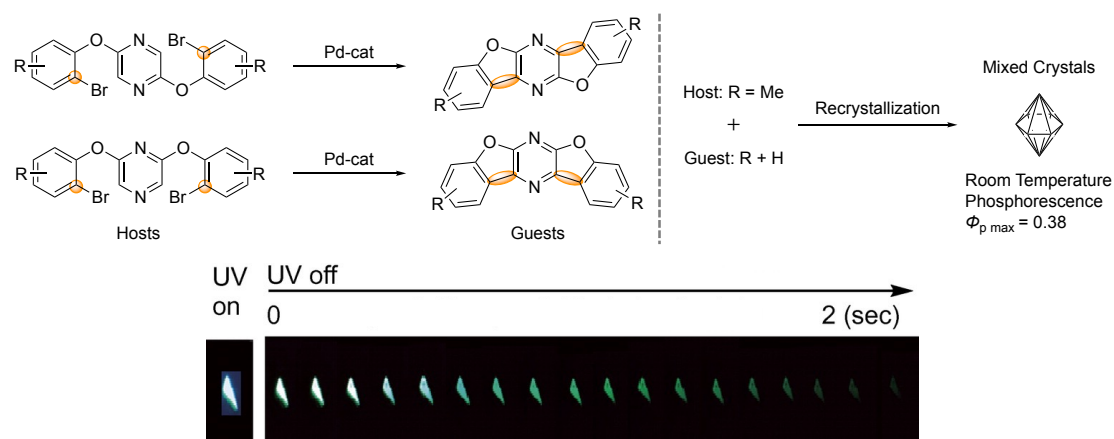
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Polycyclic heteroaromatic compounds have attracted much research interest because of their fundamentally interesting and even practically useful electrochemical and photophysical properties. In particular, luminescent materials have been actively studied for the application in bioimaging techniques, optoelectronic devices, etc. Recently, transition-metal-catalyzed intramolecular direct coupling reaction has been one of the effective methods for the construction of polycyclic heteroaromatic compounds. Based on this concept, we developed the synthetic method of linear-shaped bisbenzofuopyrazine derivatives and investigated their fluorescence as well as mechanochromic characteristics.¹⁾

In this work, we have synthesized a series of linear-shaped and bent-shaped bisbenzofuopyrazine derivatives by palladium-catalyzed intramolecular double cyclization. Mixed crystals involving the coupling products (guest) and the corresponding uncyclized starting materials (host) were found to exhibit not only fluorescence, but also phosphorescence even under ambient conditions.²⁾ Detailed effects of the mother skeletons and the substituents on their photoluminescent properties will be reported.



1) S. Nakamura, N. Tohnai, Y. Nishii, T. Hinoue, M. Miura, *ChemPhotoChem* **2019**, 3, 46.

2) S. Nakamura, M. Tsuboi, T. Taniguchi, Y. Nishii, N. Tohnai, M. Miura, *Chem. Lett.* **2020**, 49, 921.