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# Cocrystals of naphthalene diimide with naphthalene derivatives: a facile approach to tune the luminescent properties

Jian-Jun Liu<sup>a</sup>, Liu Teng<sup>a</sup>, Shu-Biao Xia<sup>a</sup>, Chi-Xian He<sup>a</sup>, Fei-Xiang Cheng<sup>a</sup>, Mei-Jin Lin<sup>b,\*</sup>,  
Chang-Cang Huang<sup>b,\*</sup>

<sup>a</sup> Center for Yunnan-Guizhou Plateau Chemical Functional Materials and Pollution Control, Qujing Normal University, Qujing 655011, China

<sup>b</sup> College of chemistry, Fuzhou University, Fuzhou 350116, China

**Abstract:** Naphthalene diimides are attracting considerable interest because of their tunable luminescent properties, which are generally achieved by the incorporation of electron-donating moieties into naphthalene diimides core to form donor-acceptor compounds through covalent bond. However, this method is an elaborate strategy because the separation of byproduct is tedious. Here we report that the luminescent properties of naphthalene diimides can be finely modulated by supramolecular cocrystal formation. Through the donor-acceptor interactions between the electron-deficient *N,N'*-di-(4-pyridyl)-1,4,5,8-naphthalene diimide (DPNDI) molecules and electron-rich naphthalene derivatives (guest), a series of cocrystal complexes are successfully fabricated. These cocrystal complexes show guest-dependent color-tunable emissions, which originate from the excited state charge transfer interactions between the DPNDI and naphthalene derivatives in the solid state. The present study anticipates providing a new method for the design of various new types of organic luminescent materials.

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