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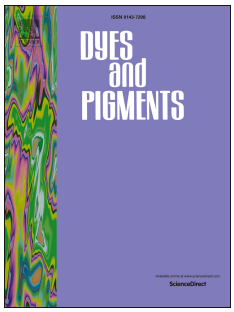

Cocrystals of naphthalene diimide with naphthalene derivatives: A facile approach to tune the luminescent properties

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

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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.