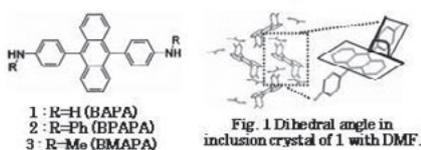


## P06.09.35

*Acta Cryst.* (2008). A64, C393**Guest-dependent luminescence modulation in inclusion crystals of anthracene derivatives**

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Luminescent modulations in solid state are attracting attention in material investigation because of their potential applications in optical device. Much scholarly research has been conducted on luminescent modulations in solution. On the other hand there has been little research on luminescent modulations in solid state. In this work, modulation factors in solid-state luminescence are developed from analyses of crystal structures and emission properties of organic crystals. To provide further insight into luminescence modulations depending on guests, many inclusion crystals were prepared and compared with each other. Luminescence of inclusion crystals, which were formed on recrystallization of 1-3 from various solutions, successfully ranges in color from blue to green under UV light. In almost all crystals, hydrogen bonds formed between amine group of 1-3 and guests were confirmed by X-ray analysis. Additionally, inclusion crystals with polar guest and with much planar conformation of hosts (Fig. 1) show long wavelength emission. The polarity of guests and the planarity of host were found to have cooperative effect on luminescence wavelength of inclusion crystals of 1-3.



Keywords: organic crystal, luminescent modulation, inclusion

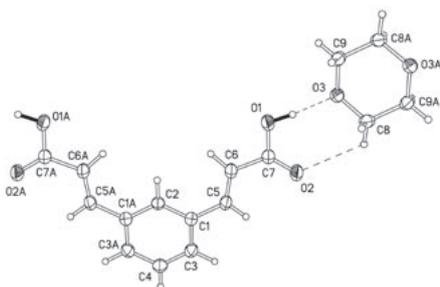
## P06.07.36

*Acta Cryst.* (2008). A64, C393**Synthesis, structure and solid-state photochemistry of *m*-benzenediacyrylic acid and its complexes**

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Unlike bis(pyridyl)alkenes, which can be readily [2+2]-dimerized by exposure to UV light in the solid state, the solid-state photochemistry of alkene-substituted acids has not been investigated yet. Due to the photoreactivity of the double bonds and the versatile coordination ability of the carboxylate groups, these compounds can serve as convenient bridging units for construction of photochemically active metal coordination compounds. To explore



such potentials, *m*-benzenediacyrylic acid was synthesized, and the solid-state photochemistry of the pure ligand and some of its complexes was studied. The crystals of the dioxane solvate of *m*-benzenediacyrylic acid, C<sub>6</sub>H<sub>4</sub>(CHCHCOOH)<sub>2</sub>·C<sub>4</sub>H<sub>8</sub>O<sub>2</sub>, are monoclinic (space group *P*2<sub>1</sub>/*m*), with cell dimensions: *a* = 4.0165(2), *b* = 29.8961(12), *c* = 6.2402(3) angstrom, beta = 90.084(4) degree. In the crystal structure, the molecules of *m*-benzenediacyrylic acid and dioxane interact with intermolecular interactions. The solid-state photochemistry of the compound and its metal compounds are currently being studied.

Keywords: crystal structure, photochemistry, complexes

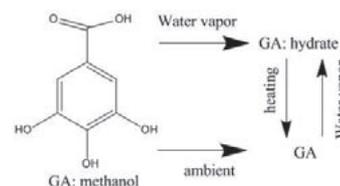
## P06.07.37

*Acta Cryst.* (2008). A64, C393**Vapor induced reversible guest exchange of organic inclusion crystal**

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By using host-guest crystal, controlled release of guests such as pharmaceuticals or functional chemicals is realized. Moreover, it is also possible to exchange the guest with new molecule by simply applying gas or vapor molecule. In this study, some examples of the guest exchange phenomena by vapor application and their crystal structure changes are presented. The crystal structures after guest release were successfully determination by structure solution from powder diffraction data technique. By application of water vapor, gallic acid methanol solvates crystal lost methanol molecules and new hydrate crystal was grown as powder crystalline form. Also, the methanol and water guests were lost in ambient condition or by heating to form dehydrated powder crystal. In both methanol and hydrate structure, large solvent channels were observed. In dehydrate form; the channel was closed by small displacement of hosts and by hydrogen bonds formation, so the water absorption proceeds slowly. This kind of reversible guest exchange process was observed for pyromellitic acid solvates. Solvent channel and hydrogen bonding pattern similarity are the keys for these guest exchange phenomena.



Keywords: host-guest complexes, powder structure determination, polymorphic structures

## P06.07.38

*Acta Cryst.* (2008). A64, C393-394**Inclusion properties of trianglamines**

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Trianglamine is a macrocycle obtained through [3+3] cyclocondensation between enantiomerically pure *trans*-1,2-diaminocyclohexane and terephthalic aldehyde, followed by the subsequent reduction of the imine bonds. This chiral hexamine displays considerable ring flexibility that allows both inter- and