

Crystal engineering of multifunctional materials

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The study of mechanical properties (elasticity/plasticity/brittleness) of molecular crystals has gained much importance since the advent of its practical use in different fields. The structural features, molecular packing and interaction hierarchies in bendable organic crystals are studied and documented.[1] Multiple properties in the same material is advantageous since it provides a broad spectrum in regulating the industrial application of such materials.[2] Elastically bendable organic single crystals with efficient luminescence property are important since it may be used as a material in the fields of organic light-emitting diodes (OLEDs), bio-imaging and optical communications.[3] In the present study the packing features and elastically bending property of a family of structurally related organic compounds are analysed and correlated. They are designed with the consideration of crystal engineering of multi-functional materials. The present study also demonstrates the ability of elastically bendable small organic molecular materials to display remarkable luminescence and photomechanical property such as bending of thin needles upon illumination with UV light.

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Keywords: [mechanical properties](#), [fluorescence](#), [crystal engineering](#)