

Seminar

Covalently linked tri and tetra-coordinated boron compounds: Intriguing optical properties and anion sensing

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Combinations are more versatile than individual entities. It is the combinations of genes that help life to evolve and move forward. Likewise in chemistry, combinations of elements produce molecules and versatile materials for various applications. Recently, combination of chromophores (multichromophoric assemblies) has received significant attention.1a Suitably designed structures with precise energy/electron transfer processes, can efficiently mimic the natural energy harvesting process (photosynthesis).1b Recently, boron containing luminophores such as BODIPY (boron dipyrromethene) and TAB (triarylboranes) have attracted much attention. Owing to their inherent Lewis acidity and notable solid state fluorescence properties, TAB's have found applications in optoelectronic devices, energy harvesting materials and anion sensing.2a On the other hand, due to their excellent optical properties and structural plasticity, BODIPYs have found numerous applications in ion recognition, biological labelling, cell imaging and dye sensitised solar cells.2b In recent times, combinations of TAB and BODIPY have attracted considerable interest.3 Recently we showed that, compact dyad structures consisting TAB and BODIPY units were found to be "dual-emissive" with two distinct emission bands arising from the individual building units.4 Thus, a combination of the two different units in a compact fashion opens new avenues for accessing a range of new luminescent materials. The present talk would describe and discuss the first example of a piezochromic solid-state emitter based on a donor-acceptor organoboron structure and also some of our recent investigations on anion sensing.

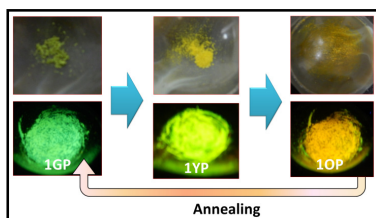


Figure : Photographs (under ambient and hand-held UV lamp) of freshly prepared compound and changes in its appearance after gradual grinding (blue arrows indicate grinding).

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11:30 AM (Tea/Coffee at 11:15 AM)

Seminar Hall, TCIS