

Mechanofluorochromism and Chiroptical Nature of Bichromophoric Difluoroboron β -Diketonates and Their Chiral Aggregates

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Difluoroboron β -diketonate complexes belong to the highly studied luminescent organoboron complexes family, exhibiting large extinction coefficients, high quantum yields and mechanochromic luminescence properties making them potential materials for various applications in biolabeling, security tags and OLEDs [1]. Moreover, another interesting property of chiral difluoroboron β -diketonate complex is the mechano-CPL, *i.e.* the changes in CPL signal upon application of mechanical stress at solid state [2]. Here, we exemplify the improvement of quantum efficiency and luminescence dissymmetry factors through introduction of bichromophoric difluoroboron β -diketonate groups on a chiral cyclohexane.^[3-4] The CPL property was enhanced upon formation of π - π stacked nanohelical wires as compared with random aggregates in MCH rich solvent and the monomeric form. Similar increased in g_{CPL} values were obtained with pristine crystals while the emission wavelength of crystalline powders was affected by application of mechanical stress.

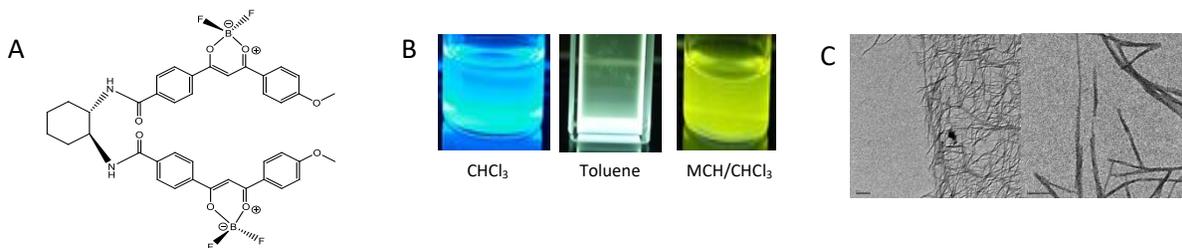


Figure 1. (a) S-Cyclohexane diamine difluoroboron diketonate complex and (b) S-Cyclohexane diamine diketonate complex in MCH/CHCl₃ (yellow), in Toluene (blue green) and in CHCl₃ (blue). (c) TEM images of xerogels formed in toluene solution

References

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