

# Crystal Engineering of the Organic Solid-state Emitters

Aijaz Ahamad Dar

Assistant Professor, Department of Chemistry, University of Kashmir, Hazratbal, Srinagar-190006,  
Jammu & Kashmir, India

Email: [aijazku2015@gmail.com](mailto:aijazku2015@gmail.com)/[daraijaz@uok.edu.in](mailto:daraijaz@uok.edu.in)

## ABSTRACT

Crystal engineering involves understanding of the intermolecular interaction and their utilization for the development of new functional materials for real time applications. Solid-state emission is an emergent material property with immense scope for the development of applied materials for sensing, lighting, anti-counterfeiting, high speed communications, biological imaging, etc. The area is underexplored and emission fine-tuning to realise multi-color and white light emission are being vigorously explored. We have reported the lesser reported sulfonate-pyridinium interaction as a robust synthon and utilized it for the development of materials with improved thermal stability, optical behaviour and aqueous solubility. Exploring the scope of intermolecular interaction further, we have realised solid-state multi-color emission as well as emission tuning in the organic precursors through both functionalization and co-crystallization. Structural and computational studies provide valid insights into structure property relationship and help to establish more general design strategies.

**Keywords:** intermolecular interaction, functional materials

