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Non-covalent interactions that control the self-assembly of organic molecular crystals

M Sithambaresan
Eastern University, Sri Lanka

Non-covalent interactions (NCI) are of paramount importance in chemistry and especially in bio-disciplines since they set up the force-field scenario through which chemical species interact with each other without a significant electron sharing between them. They represent, in fact, the machinery through which molecules recognize themselves and establish how molecules will approach and eventually pack together. These kinds of weak interactions become important in determining the properties of substances and therefore we have explored some of the novel organic molecular crystals to study the non-covalent interactions and their behavioral patterns during packing of molecular crystals. Animated pictures and videos are used to explore the nature of these interactions. This study provides better understanding of various non-covalent forces such as classical and non-classical hydrogen bond, π… π, C-H…π interactions etc. thereby demonstrating the packing forces for designing novel materials having certain interesting physical properties.

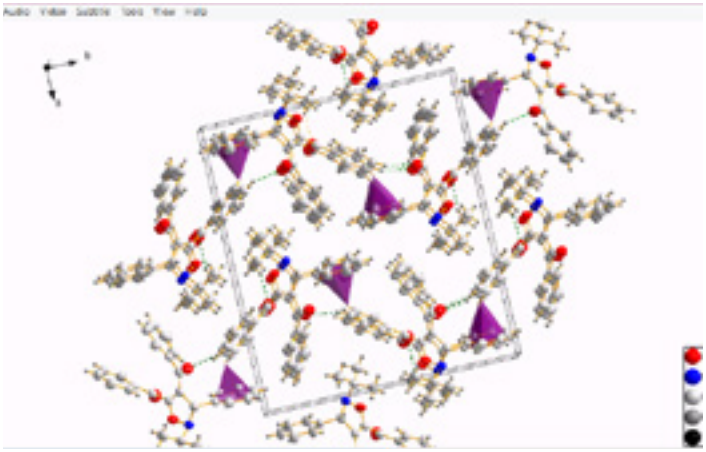

Figure-1: Crystal packing diagram of 3,5-dihydro-5,9 b-o-benzonaphtho [1,2-c] furan-1-one viewed along a axis.

Biography

M Sithambaresan has his expertise in synthesis and characterization of transition metal complexes and single crystal studies of organic ligands and metal complexes. His works on crystal studies on ligands and metal complexes creates new pathways for improving characterization of novel complex molecules and designing of new materials with required properties to enlighten the development of sensor for medical, pharmaceutical and various other fields.

msithambaresan@gmail.com

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