

Seminar

Institute for Plasma Research

- Title:** Synthesis, growth and physico-chemical investigations on Morpholinium based crystals for non-linear application
- Speaker:** Dr. Thiyagarajan Maadhu
Vellore Institute of Technology, Tamil Nadu
- Date:** 18th October 2024 (Friday)
- Time:** 03:30 PM
- Venue:** Seminar Hall, IPR

Abstract

In this talk, we explore latest advances in science and technology are aware of the unavoidable importance of single crystals in developing the future of technology. Owing to their intriguing physicochemical characteristics and significant NLO response, morpholinium-based single crystals have attracted much attention from researchers in recent years for various optoelectronic and photonic applications. In this manner, the present work examines the synthesis, growth, and physico-chemical analyses of single crystals based on morpholinium, such as Morpholinium 3,5-dinitro salicylic acid (M35DS), Morpholinium Bromide (MBr), BisMorpholinium zinc bromide (BMZB), Bismorpholinium mercury (II) tetrabromide (BMMC) and Bis Morpholinium cadmium chloride (BMCC) for NLO application.

In the talk, I also explore the in handling various instruments such as BRUKER-ray diffractometer with $\text{CuK}\alpha$ radiation ($\lambda=1.5406 \text{ \AA}$). UV-Visible Absorption spectrophotometer (Perkin Elmer Lambda-35 UV-Vis NIR spectrophotometer), FTIR Spectrometer 4000 cm^{-1} to 500 cm^{-1} a Bruker AXS, Perkin-Elmer Diamond TG-DTA equipment and SHIMADZU-HMV-G20S series microhardness. Am gained good working experience in z-scan DPSS laser with a power of 100 mW and a wavelength of 532 nm and computational software tools such as Gaussian 09 (Windows), WinXMorph software, Chem Draw 18.1, Origin 8.1, Mercury3.8 and Chimera3.6.

This work has been carried out during my PhD. It has been published in the 13 papers reputed SCI journals. Two manuscripts are under preparation and will be communicated soon.
