

## Poster Presentation

**MS25.P01**

### *Growth and optical characterisation of thiourea (nh<sub>2</sub>csnh<sub>2</sub>) single crystals*

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The beauty of single crystals are very much fascinating. The flatness of their faces and sharpness of their color gives us deep satisfaction. Thiourea (NH<sub>2</sub>CSNH<sub>2</sub>) is an organic material. Organic single crystals have several applications in modern frontline technologies like electronics, photonics, optoelectronics and non linear optics(NLO). The authors have successfully grown Thiourea crystals using relatively simple and inexpensive slow evaporation of aqueous solution technique with different intensities (watt) and frequencies (Hertz) as their growth conditions. The observation suggest that in absence of light the growth period is very long and crystals are opaque by increasing the intensities of light and using different filters ,the growth period reduces and transparencies increases. Crystals obtained have hexagonal and tetragonal shapes with different optical qualities. The average size of the crystals were varied in size from 40mmX28mmX1mm to 1.5mmX1.5mmX0.5mm.Grown crystals were optically characterized by UV-Vis –NIR spectroscopy, Ellipsometry, Laser Dispersion and Second Harmonic Generation studiers. The thiourea has a good transmittance and lower cut off wavelength is 280 nm. Spectra reveal the presence of absorption peak between 200nm to 280nm. crystals have a direct band gap about 4.0 eV. Selected crystals were polished for Ellipsometric study using variable angle spectroscopic Ellipsometry using operating wavelength between 240-1700nm, angle of incidence between 20° to 90°,data were taken with wavelength interval of 50nm and angle of incidence in interval of 0.5°.The polarization state of light incident upon the sample may decomposed into s and p component. Using the fundamental equation the relation between refractive incidences and Brewster angle was obtained. SHG and laser dispersion study suggest high potential application of these crystals.

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