**Current Research Activity:**

**Ongoing Project:**“Voltage- Current (V-I)) characteristic, dielectric & electro-optical properties of quantum dots doped nematic liquid crystals” **Grant of Rs. 10 Lakhs under center of Excellence scheme UP Government.**

* Currently we are working on the characterization of soft condensed materials with different dopants like Nanoparticles (NPs), Quantum Dots (QDs), Dyes and Polymers.
* We are investigating the effect of different dopants on the different parameters of soft condensed materials .
* We are also performing thermal analysis with the help of Differential Scanning Calorimeter (DSC)instrument. It measures the heat flow rate to or from a sample specimen as it is subjected to a controlled temperature program in a controlled atmosphere.
* UV-Vis absorbance study has also being performed here. Absorption is a fundamental and practically important parameter for any soft condensed materials which has vital impact on photostability and life time of many devices. The characteristic absorption curve also provides information about the electronic transitions associated with the soft condensed material.We are also analyzing the Optical Micrograph textures for different condensed materials. When a uniform thin layer of soft condensed material is introduced between crossed polarizers, it evinces the beautiful optical texture due to its birefringent nature and interaction with incident white light.
* *Schlieren texture of nematic phase. The liquid crystal appears where the director points along one of the polarizer axes. Points where dark areas converge are* disclinations.*Droplet texture with defects in nematic phase.*

