

Development of Chiroptical Semiconductor Nanocrystals for Photonic Applications

Graphical Abstract/ Lavout

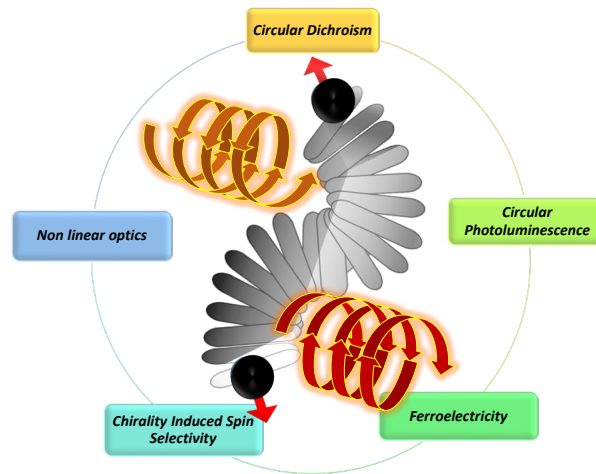


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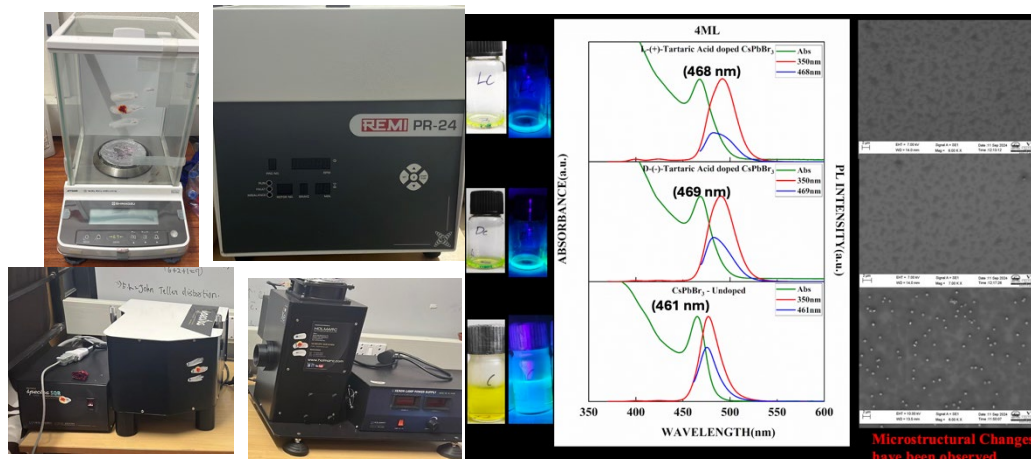
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Project Description

The primary aims of this research proposal are threefold: (1) Design of chiral semiconductor nanostructures with high photoluminescence quantum yield: The recent development in the field of colloidal perovskite quantum dots with high photoluminescence will be exploited for high luminescent quantum dots structures with high photoluminescence quantum yield. The structure will be varied in different respect (doping, superstructure, and assembly). (2) Understanding the light-matter interaction in chirally functionalized/induced colloidal nanostructures (CNS) *via* polarized optical spectroscopy: The circular dichroism spectroscopy and circular polarized photoluminescence spectroscopy provide valuable information to understand the light-matter interactions in chiroptical semiconductor nanocrystals (3) Applications of the chiral semiconductor nanostructures in circularly polarized detectors and optical rotators: Their photo responses will be checked in terms of optical rotational strength, detection strength of polarized photocurrent.

Products/ Instruments/ Results/ Outreach Activities



Name of the Funding Agency
Science and Engineering Research Board (SERB)

Name of the Scheme
Start-up Research Grant (SRG)

Sanctioned Amount (in Rupees)
Rs. 32,55,788

Duration of the Project (years)
2