

Seminar Presentation Details
(2017-2018)

1. VIJAYSHANKAR ASOKAN

Title: Understanding electron microscope for basic materials science research

Date: 14-12-2017

This talk was focussed on basic principles and working of Electron microscopy to the latest technologies available in Electron microscopy for exploring the angstrom level characteristics of the materials.



2. VENKATRAMAN M. R

Title: Microwave Assisted Solvothermal Synthesis of TiO₂ Nanostructures as Light Scattering Layers for DSSC Photoanodes

Date: 23-01.2018

Among the different layers of DSSC, photoanodes are the very important part where dye molecules are adsorbed to the wide bandgap semiconducting oxides surface. The electron produced by the dye by excitation has to pass to the outer circuit through this semiconducting layer. Generally, the light scattering layer over the active layer improves the light scattering property, thereby light interaction over the dye can be improved. The size of the particles also has significant effect towards the light scattering nature of the material. The significance of the light scattering layer prepared through rapid microwave technique for DSSC was discussed in this talk.



3. YUVARAJ SELVARAJ

Title: **Advances in surface treatment by Plasma Ion Implantation**

Date: 30-01-2018

The surface treatment is a very important phenomena in materials science as altering the surface has significant effect in materials properties such as wettability, optical characteristics among several others. Uniqueness of the cold plasma instrument used for the generation of different plasmas such as argon, oxygen, acetylene, nitrogen over variety of substrates were discussed.



4. P. PAVITHRAKUMAR

Title: Facile Perovskite solar cell device fabrication process

Date: 13-02-2018

Among the different generations of solar cells, Perovskite solar cells have attracted great attention recently for its enhanced performance equal to that of silicon solar cells. Unlike other solar cell fabrication process, perovskite fabrication process involves multiple steps of coating. This talk was focussed on the fabrication process of perovskite solar cells with step by step details.

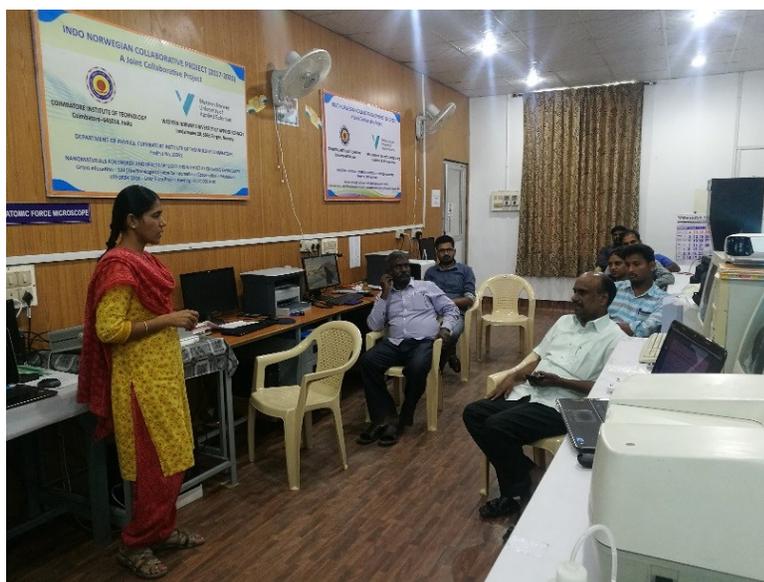
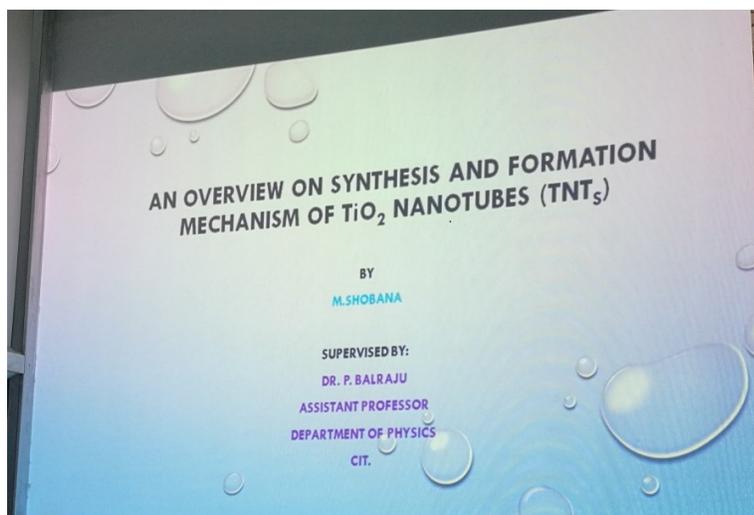


5. M. SHOBANA

Title: **An overview on the synthesis and formation mechanism of TiO₂ nanotubes (TNTs)**

Date: 13-02-2018

1D nanostructures have gained much attention in various fields for its highly potential properties such as, high aspect ratio, large specific surface area, and excellent electronic or ionic charge transport properties among several other properties. Titanium dioxide based nanostructures such as nanotubes have attracted much interest due to their unique highly ordered structure and electronic properties. This talk was focussed on the formation mechanism of TiO₂ nanotubes by hydrothermal method under basic environment.



6. P. SELVAKUMAR

Title: **Nickel Sulphide – Carbon Composite based Hole Transporting Material for Perovskite Solar Cells.**

Date: 27-02-2018

In the presentation, the importance of hole transporting materials (HTMs) in perovskite solar cells (PSCs) were discussed. Also, the replacement of high cost HTMs using low cost Nickel Sulphide (NiS) / NiS- Carbon composites were discussed. The photovoltaic properties of the NiS/ NiS- Carbon composites favours to achieve affordable efficiency as well as in terms of stability of fabricated PSCs were also discussed.

