

Lab Facilities

Photonic Research lab with following facilities

The primary area of expertise of our Photonics Research Lab is Simulation and modelling of optoelectronic devices and deposition of thin-film, solution processable novel semiconducting films. Solution-based processes include spin-coating and spray pyrolysis, and offer room temperature atmospheric deposition of semiconducting thin-films.. Our lab's principle focus is in energy basic related research including photovoltaic, Display devices, solid-state lighting, and planning to extend towards luminescent solar concentrators. Collaborations with UCSC & Cambridge University promote opportunities for combining exciting deposition processes and unique spectroscopic techniques to understand the basic and applied physics of novel thin-film semiconductors.

Modelling , simulation , design and characterization of Polymer Light Emitting Diode (PLED) & Organic Light Emitting Diode (OLED) and Solar Cells are major thrust areas in Electronics .PLED/OLED technology is very energy efficient and lends itself to the creation of ultra-thin film lighting displays that will operate at lower voltages. The group has the developed simulators for single and bi layer devices and through simulations, extensive profiles of transient's electric field, carrier density, current and its components, luminescence and recombination density has been generated.

An interdisciplinary effort to establish a Centre for Organic Electronics as the focus has been initiated to consolidate the gains of experience with organic electronics at Optoelectronic Group. Cavendish Lab, University of Cambridge, Cambridge, UK, IBM San Jose and University of California of faculty member. The study of polymeric materials at nanoscale to engineer properties suitable for electronic applications is the principal goal. The development of Light emitting diodes molecular and nano materials is the key to this novel effort. In this effort, an advanced photonics laboratory has been setup with basic state of art processing and diagnostic facilities e.g. Thin Film deposition techniques and electrical & optical characterization techniques

Thin Film deposition equipment's


- Programmable Spin Coater
- HINDHIVAC VACCUM COATER WITH LNT
- Spray Pyrolysis Apparatus

Characterization set up/Simulation Software

- Lab View circuit simulation Software
- Mat Lab Software and its Tool Boxes
- TFT LCD Video Module
- Agilent Semiconductor Parameter Analyzer Test System for I.V.L. Characterization
- Laser Optics Lab Kit
- Wavelength Division Multiplexer Character -ization Set up

- Erbium Doped Fiber Amplifier Characterization Set up
- Setup for Measurement of Attenuation & Dispersion in Optical Fiber
- Keithley Source Meter
- Spray Pyrolysis Apparatus
- Ellipsometer
- Spectrum Analyzer
- Solar Cell Setup Ecosense

Analog and Digital Lab.

- Opto-Electronics and Microwave Lab.
- Analog and Digital Communication Lab.
- Microprocessor, Microcontroller & VLSI Design Kit Lab.
- Advanced Optical Communication Lab.
- Virtual Instrumentation Lab (LabView).
- Advanced computing through MATLAB 2009 (b) and its Toolboxes.
- Advanced Instrumentation Lab.
-  Laser Optic Lab.