

Details of CARE Facility

Name of CARE facility: Upgradation for Raman System

- 1) 2 number of SPEX 232/488-RETRO RS-232 and IEEE-488 two way interface.
- 2) SAQ-302DPM, SpectrAcq2 Data Acquisition System with DM302 Photon counting module.
- 3) PMT-HVPS, Stand alone high voltage Power Supply for PMT detectors.
- 4) NI card and three cables.
- 5) Labspec windows based software along with Pentium 4 PC
- 6) One Nitrogen cooled CCD has been replaced.
- 7)

Location: Biomedical Optics and Spectroscopy Laboratory, SI-111, Southern Labs.

Total cost of equipment/facility: 11 Lakhs

Year of CARE funding: 2002 and **Operational since:** 2005

Support provided by CARE: 11 Lakhs **Name of Principal Investigator:** Dr. Asima Pradhan (asima@iitk.ac.in; Tel: 7691/7971)

Participating departments: Physics, CELT

Brief description and capability of CARE facility:
(Please add a photograph of the facility)

The micro-Raman facility consists of a 5watt Argon-ion laser, triplemate spectrometer system (1877E), PMT and liquid nitrogen cooled CCD detectors, all of which interfaced to a computer (System is almost 20 years old). The upgradation of the data acquisition system to the present state of interfacing with Pentium 4 computer, a new CCD controller and PMT high voltage supply have been obtained through the CARE grant.



Technical Specifications:

- 1) Two Spex 232/488 Retro RS232 and IEEE-4888 two way interface. RS232 is a 25 pin Standard Rs-232 null modem cable that is connected to spectrometer controller to the computer.
- 2) SAQ-302DPM, SpectrAcq2 Data Acquisition System: Gain Range 1,10,100 and 1000 X, Input voltage range $\pm 10, 1, 0.1, 0.01$ Volts, Maximum signal 10micro Amps/10 Volts, ADC resolution 16 Bits, Voltage supply ± 15 V.
- 3) PMT-HVPS, Stand alone high voltage Power Supply: Output Voltage 0 to -2000V DC, maximum output current 1mA, ripple noise 30mV peak to peak, input line voltage 24V DC.
- 4) Labspec windows based software along with Pentium 4 PC: Computer with 256 MB of RAM, 80GB Hard disk with Pentium 4 processor with a Labspec windows based software to control Raman System.
- 5) One Nitrogen cooled CCD: Typical sensor operating temperature -133°C , optical distance from sensor to front flange 0.791mm.

Utilization of the facility:

Others: DMSRDE, IOP Bhubaneswar, IIT Delhi, Departments of Physics, Chemistry, Chemical Engineering, MSP of IITK.

Mechanism of time sharing: Usually on Thursdays of the week.

Charging mechanisms: Rs. 200 /- per scan

Any difficulties, that you faced in running CARE facility: I don't have any full time technical personnel to look after this CARE facility. My PhD students help the users of this machine.

Link to the website for the CARE facility, if any: No link