

Photonics Lab

Lab-in-charge: Dr. R.Vijaya

General:

Location: SL 116

Phone number: 7712

Research areas:

Fiber optics

Photonic crystals

Nonlinear optics

Integrated optics

Current research:

- (i) Fiber lasers - study of nonlinear dynamics (period doubling, chaos, optical bistability) and nonlinear optical features (four wave mixing, spectral broadband generation).
- (ii) Photonic crystals – fabrication, emission studies, plasmonic structures, laser microcavity designs and band edge features.
- (iii) Free-space nonlinear optics – Stimulated Raman scattering
- (iv) Optical-quality multi-layer structures (by DC/RF sputtering) and lithography-based photonic device design (by soft imprint lithography, FIB and / or femtosecond laser micromachining).

Group members:

Post-doc:

Dr.M.Srinivas Reddy

Ph.D students:

Gyanendra Kumar

K.V.Ummer

Dipak Rout

Suchita

Govind Kumar

M.Tech students (year of completion):

C.S.Ananthakrishnan (2013)

Sourav Das Chowdhury(2013)

Avijit Chatterjee (2014)

Soham Sarbadhikari (2014)

Hirak Mondal (2015)

M.Sc student:

Manobina Karmakar

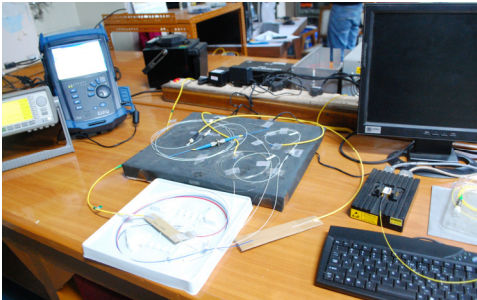
Project staff:

Linu George

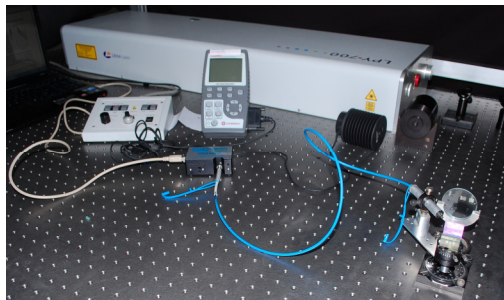
Facilities in the lab:

980 nm, 1480 nm and 1550 nm laser (CW)

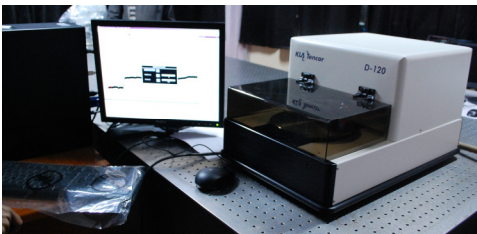
Erbium doped fiber amplifier / laser
Optical spectrum analyzer
O-E detector and oscilloscope
Fiber-optic components (modulator, isolator etc), Specialty fibers
Arc fusion splicer
High-power lamp, monochromator, spectrometer
Detectors for Vis, near-IR
Nd:YAG laser (ns pulsed) 1064 nm (and SHG)
Spin coater, furnace
Vibration-isolation table
Optical Microscope
Stylus Profilometer
Software for photonic band structure calculations



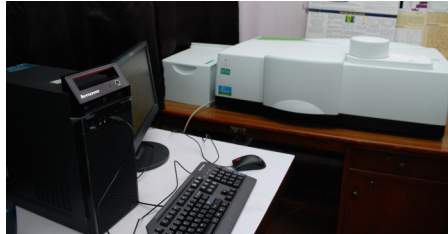
Erbium-doped fiber ring laser



Nanosecond pulsed Nd:YAG laser



Stylus profilometer



UV-Vis-near IR spectrophotometer

Write to rvijaya@iitk.ac.in if (i) you want to see the lab and find out about the on-going research and / or (i) you want to use any equipment listed above.