

Details of CARE Facility

Name of CARE facility: Pico Second Pulsed Laser (400nm, 970nm, and 1550nm)

Location: Optoelectronics Laboratory (ACES 129)

Total cost of equipment/facility: 14.5 Lakhs

Year of CARE funding: 2001-02 and Operational since, Feb. 2002

Support provided by CARE: 9.63 Lakhs (rest support from DST-EE Project)

Name of Principal Investigator: Dr. Utpal Das (utpal@iitk.ac.in, Tel: 7150/6084)

Participating departments: EE, CELT, ChE

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



1. Pulsed Laser Driver with Repetition rate from single shot to 40 MHz.
2. 405nm wavelength Laser Head gives a FWHM Pulsewidth of 50ps at peak power 588mW (max).
3. 971nm wavelength Laser Head gives a FWHM Pulsewidth of 50ps at peak power 1.25W (max).
4. 1550nm wavelength Laser Head gives a FWHM Pulsewidth of 152ps at peak power 49mW (max).

Other Technical Specifications:

Repetition frequencies 1, 1/2, 1/4, 1/8, 1/16 of base frequency (Master frequency 40 MHz).

External Trigger Input : Amplitude -5 V to +5 V(max), Trigger level (adjustable) -1 V to +1 V (negative slope) Required pulsewidth > 5 ns Delay 35 ± 5 ns (from trigger input to optical output), jitter <40ps Frequency range 10 Hz to 80 MHz Internal impedance 50 Ohms (dynamic), >500 Ohms (static) Connector BNC socket (F)

Synchronization Output: Amplitude < - 800 mV into 50 Ohms (NIM - standard) Pulse width 6ns Delay 12 ns (from falling edge to laser output), jitter < 20 ps Internal impedance 50 Ohms Connector SMA socket (female)

Utilization of the facility:

(The system can be used to 1ns only due to nonavailability of ps detection system)

a) PI: For ns order temporal measurements--1 M.Tech, and 1 B. Tech thesis work (Fabrication of photodiodes).

b) Others: NIL

Mechanism of time sharing: Anytime as per convenience of the Laboratory.

Charging mechanisms: None

Any difficulties, that you faced in running CARE facility: Limited to 1ns. 50 GHz Sampling Oscilloscope for ps detection (Rs. 20 Lakhs), which was to be purchased from another DST project has been delayed due to breakup of current project into Phase-I and Phase-II, expected in 2008.

Link to the website for the CARE facility, if any: NIL