

Technical Specification for the Femtosecond Laser Facility
Contact: Dr. Pratik Sen, Department of Chemistry, IIT Kanpur (psen@iitk.ac.in)

1. Femtosecond Laser Source and Accessories

Mode-locked tunable pulsed Titanium:Sapphire Laser with Femtosecond pulse along with integrated Pump Laser inside a sealed Single-Box unit.

- Single-Box Unit: Ti:Sap oscillator with integrated pump Laser in Single Box
- Output Laser Pulse Width: 140 fs or lower
- Pulse Repetition Rate: ~ 80 MHz
- Tuning Range: 690 nm – 1040 nm or Larger
- Wavelength Tuning: Automated, Computer Controlled
- Average Power @800 nm: 2.5 W or Higher
- Peak Power @800 nm: 300 kW or Higher
- Output Laser Polarization: Horizontal with 500:1 or Better
- Laser Stability: ± 1 or Lower
- Spatial Mode: TEM₀₀ with $M^2 = 1.1$ or Lower
- Laser Beam Diameter $(1/e^2)^2$: ~1.2 mm
- Noise: 0.15% or Lower
- Beam Pointing Stability: 0.5 μ rad / nm or Better
- Operating Temperature Range: 15° to 35° or Larger
- Operating Voltage: Single-phase, 220 VAC to 250 VAC
- Warranty: Two Years or More

Accessories

- Laser Power Meter: Thermal Sensor, Measures Few μ W to 10 kW or Higher
- IR Viewer: Range 350 – 2000 nm or Larger
- Portable Fiber Spectrometer: USB interfaced, Wave Length Range 380-1000 nm or Larger
- Mirrors and Mirror holders: Mirrors and holders to direct Laser beam into spectrometer
- 2 beam 50:50 splitters (working range 700 – 1000 nm or better) for making three laser lines from output of the laser
- Pin-hole/Irish with post and base: Total 10 numbers; to be used for beam path assignment
- Glass Filters (squire): UG1, UG5, UG11, BG3, GG395, GG400, GG420, GG435, GG455, GG475, GG495, OG515, OG530

2. Honeycomb Optical Table

- Size: 1500 (W) \times 3600 (L) \times 305 (H) mm with Metric M6 Holes, hybrid chambers, and suitable vibration isolator legs that includes lamellar flow damping
- Surface: Ferromagnetic stainless steel
- Surface Flatness: ± 0.1 (over reasonably long distance) or better
- Deflection with load: 5×10^{-5} inch or better
- Mounting holes: M6-1 on 25 mm
- Triple core

Terms and Conditions:

- (a) A single company / distributor have to quote all the items (1-2)
- (b) For each item (1-2) separate quotation should be provided
- (c) The lowest total price of all items (1-2, with accessories) will be considered as the total lowest price quoted for the entire setup.

Pratik Sen.