DEPARTMENT OF PHYSICS
NATIONAL INSTITUTE OF TECHNOLOGY: TIRUCHIRAPPALLI - 620 015

30.12.2013

Tender Notification No.: NITT/F.NO:SIF013/PLAN2013-14 dt: 19.12.2013

With reference to the above tender notification and the pre-bid conference held on 30.12.2013 at 12.00 noon in the committee room of Physics department, the following amendments are made. The Delivery period is 24 weeks subject to export license clearance. All other terms and conditions mentioned in the tender document remains same.

Specification for Low Temperature Photoluminescence

Original tender specification	Amended specification
I. He-Cd Laser with min specification as follows: • Minimum of 30mW output in TEM00 mode • Air cooled • 1 to 1.2 mm beam diameter • 0.5 mrad beam divergence • System should be provided with a flip mirror mount for easy alignment to PL system.	**I. He-Cd Laser with min specification as follows:** • Minimum of 30mW output in TEM00 mode • Air cooled • 1 to 1.2 mm beam diameter **(minimum)** • 0.5 mrad beam divergence • System should be provided with a flip mirror mount for easy alignment to PL system.
II. Macro PL Sample chamber should fulfill the following • Should have a manual XY stage for room temperature measurements • XY axis travel should be in the range of 8cm, Z axis manual stage should have a travel range : ±5mm • Should include a sample plate, Manual dichroic and Al mirror set for input laser source • Should necessary include all required optics (bandpass, edge, dichroic filter,mirror etc.) and mounts **For Focusing light onto the sample, Light collection:** • Quartz plano convex lens set to collect the signal • High reflectance Mirrors for excitation wavelength, UV • LMU-5X-U (Uncoated type 5X) • Wavelength range should be : 300-1000nm	**II. Macro PL Sample chamber should fulfill the following** • Should have a manual XY stage ~~**for room temperature measurements**~~ • XY axis travel should be in the range of 8 cm, Z axis manual stage should have a travel range : ±5mm • Should include a sample plate, Manual dichroic and Al mirror set for input laser source • Should necessary include all required optics (bandpass, edge, dichroic filter, **ND filter,** mirror etc.) and mounts **For Focusing light onto the sample, Light collection:** • Quartz plano convex lens set to collect the signal • High reflectance Mirrors for excitation wavelength, UV • LMU-5X-U (Uncoated type 5X) • Wavelength range should be : 300-1000nm

• Working distance : 35mm, 40mm focal length, NA : 0.13 • TFS beam : approx. min. 3-5um @ entrance aperture and Gaussian beam profile 325nm input source • Should have a VIS CCD camera for sample Image and Monitoring system • Direct laser input and signal input to spectrograph • Iris Diaphragm set for laser beam alignment • System should have a manual shutter **III. Closed cycle He cryostat with He- compressor set for PL with the following specs:** Manual stage system for Cryostat movement with Al profiled table set. • Operating temperature should be in the range : 10K-325K • Cooling Power : 1.8-2.7 Watts at 20K • Initial cooldown time : approx. 1 hour to 20K • Subsequent cooldown time to base temp. : < 30 minutes • Demountable optical first-stage radiation shield **Demountable optical outer vacuum shroud** • 2(two) 1.5 inch diameter clear optical quartz windows • Reliable bellows style evacuation valve • 50 Ohm high power heater installed on coldhead ,10-pin feedthrough with mating connector plug • Standard Sample Holder for optical • Should Include Two stage direct drive Rotary vacuum Pump • With oil mist trap & flexible hose 1M , Min. Pressure: $1x10^{-3}$ torr • Pumping speed: 60 l/min. & motor power: 200 W	• Working distance : 35mm, 40mm focal length, NA : 0.13 • TFS beam : approx. min. 3-5um @ entrance aperture and Gaussian beam profile 325nm input source • Should have a VIS CCD camera for sample **Image processing, Monitoring and control system** • Direct laser input and signal input to spectrograph • Iris Diaphragm set for laser beam alignment • System should have a manual shutter **III. Closed cycle He cryostat with He- compressor set for PL with the following specs:** Manual stage system for Cryostat movement with Al profiled table set. • Operating temperature should be in the range : 10K-325K • Cooling Power : 1.8-2.7 Watts at 20K • Initial cooldown time : approx. 1 hour to 20K • Subsequent cooldown time to base temp. : < 30 minutes • Demountable optical first-stage radiation shield **Demountable optical outer vacuum shroud** • 2(two) 1.5 inch diameter clear optical quartz windows • Reliable bellows style evacuation valve • 50 Ohm high power heater installed on coldhead ,10-pin feed through with mating connector plug • Standard Sample Holder for optical • Should Include Two stage direct drive Rotary vacuum Pump • With oil mist trap & flexible hose 1M , Min. Pressure: $1x10^{-3}$ torr • Pumping speed: 60 l/min. & motor power: 200 W

IV. 0.5m focal length Spectrograph should have the following specification • Side entrance slit and front exit port for CCD detector • Resolution should be : 0.09nm @ 435.8nm (1200, 1800gr/mm grating), 10 um slits • Focal length should be 0.5m, • Optical path : Czerny-Turner type, • Imaging Spectrograph by Toroidal Mirrors. • Aperture must be f/4.2, • Grating Turret: triple-grating (68 mm x 68 mm) turret • Should have Interface of RS232 & USB standard Accuracy must be ± 0.2nm • Repeatability: ±0.04nm • Drive-step size:0.0025 nm with 1800gr/mm • Dispersion : 2.5nm/mm • Preferred Focal-plane size: is 26mm wide x 14mm high • A fixed diverter mirror assembly for entrance side port • A micrometer controlled adjustable slit assembly for entrance and exit ports • 0 to 5mm (10micrometer increment/decrement unit) • Should have 32 bit control board • Preferred Grating 3-1200-300,Ruled Grating 68×68mm,1800G/mm,300blz,200-500nm • 1-120-750 Ruled Grating 68×68mm 1,800G/mm 750blz 500-1-300nm	**IV. 0.5m focal length Spectrograph should have the following specification** • Side entrance slit and front exit port for CCD detector • Resolution should be : **0.05nm** @ 435.8nm (1200, 1800gr/mm grating), 10 um slits • Focal length should be 0.5m, • Optical path : Czerny-Turner type, • Imaging Spectrograph by Toroidal Mirrors. • Aperture must be f/4.2 **(minimum)** • Grating Turret: triple-grating (68 mm x 68 mm) turret • Should have Interface of RS232 & USB standard Accuracy must be ± 0.2nm • Repeatability: ±0.04nm **(minimum)** • Drive-step size:0.0025 nm with 1800gr/mm **(minimum)** • Dispersion : 2.5nm/mm **(minimum)** • ~~**Preferred**~~ Focal-plane size: is 26mm wide x 14mm high • A fixed diverter mirror assembly for entrance side port • A micrometer controlled adjustable slit assembly for entrance and exit ports • 0 to 5mm (10micrometer increment/decrement unit) • Should have 32 bit control board • ~~**Preferred**~~ Grating 3-1200-300,Ruled Grating 68×68mm,1800G/mm,300blz,200-500nm • 1-120-750 Ruled Grating 68×68mm 1,800G/mm 750blz 500-1-300nm
V. Data Acquisition system should have minimum specs as follows: • CCD based • Active Pixels is 1024x255 • Pixel Size is 26x26 • Image Area is 26.6x6.6	**V. Data Acquisition system should have minimum specs as follows:** • CCD based • Active Pixels is 1024x255 • Pixel Size is 26x26 • Image Area is 26.6x6.6

• Peak QE is 43% @ 600 nm 27% @ 250 nm • Wavelength range is 200- 1000 nm • Min Operating Temp is -70 @ water circulation • Pixel Well Depth is 1000000 • FVB is 75 • Read Noise is 4e-@33KHz **VI. Computer control system and optical table:** • Should include latest configuration of PC with high speed processor and memory. • Optical table with pneumatic support system.	• Peak QE is 43% @ 600 nm 27% @ 250 nm • Wavelength range is 200- 1000 nm • Min Operating Temp is -70 @ water circulation • Pixel Well Depth is 1000000 • FVB is 75 • Read Noise is 4e-@33KHz **VI. Computer control system and optical table:** • Should include latest configuration of PC with high speed processor and memory. • Optical table with pneumatic support system.
Note: Pre-installation/post-installation training expenses (including travel, boarding and lodging) should be borne by the supplier.	**No amendment**

Dr. N. Gopalakrishnan

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