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

**05.11.2015**

## Minutes of the Pre-bid meeting:

**Tender Notification No.: NITT/F.No:SIF013/PLAN2015-16 dated 20/10/2015**

The Pre-bid meeting for Low Temperature Photoluminescence was held on 05-11-2015 at 11.00 AM in the Administrative block to discuss the specification published in the tender. The following suppliers were present in the meeting and requested amendments in the specifications.

1. M/s.Laser Science Services (I) Pvt. Ltd, Navi Mumbai
2. M/s. Laser-Spectra services India Pvt.Ltd., Bangalore

Based on the discussion, the committee recommends the following amendments to the specification. In addition, the committee recommends the delivery date has to be mentioned as 24 weeks subject to Export License clearance.

## Specification for Low Temperature Photoluminescence

| Original tender specification | Amended specification |
|---|---|
| **I. He-Cd Laser with min specification as follows:** | **I. He-Cd Laser with min specification as follows:** |
| • Minimum of 30mW output in TEM00 mode | • Minimum of 30mW output in TEM00 mode |
| • Air cooled | • Air cooled |
| • 1 to 1.2mm beam diameter | • 1 to 1.2mm beam diameter |
| • 0.5mrad beam divergence | • 0.5mrad beam divergence |

| | |
|---|---|
| • System should be provided with a flip mirror mount for easy alignment to PL system. | • System should be provided with a flip mirror mount for easy alignment to PL system. |
| **II. Macro PL Sample chamber should fulfill the following**<br>• Should have a manual XY stage for room temperature measurements<br>• XY axis travel should be in the range of 8cm,Z axis manual stage should have a travel range : ±5mm<br>• Should include a sample plate, Manual dichroic and Al mirror set for input laser source<br>• Should necessary include all suitable optics (bandpass, edge, dichroic filter,mirror etc.)and mounts | **II. Macro PL Sample chamber should fulfill the following**<br>• Should have a manual XY stage for room temperature measurements<br>• XY axis travel should be in the range of 8cm,Z axis manual stage should have a travel range : ±5mm<br>• Should include a sample plate, Manual dichroic and Al mirror set for input laser source<br>• Should necessary include all suitable optics (bandpass, edge, dichroic filter,mirror etc.)and mounts |
| **For Focusing light onto the sample, Light collection:**<br>• Quartz plano convex lens set to collect the signal<br>• High reflectance Mirrors for excitation wavelength, UV<br>• LMU-5X-U (Uncoated type 5X)<br>• Wavelength range should be : 300-1000nm<br>• Working distance : 35mm,40mm focal length, NA : 0.13<br>• TFS beam : approx. min. 3-5um @ entrance aperture and Gaussian beam profile<br>325nm input source | **For Focusing light onto the sample, Light collection:**<br>• Quartz plano convex lens set to collect the signal<br>• High reflectance Mirrors for excitation wavelength, UV<br>• Maximum 15X<br>• Wavelength range should be : 300-1000nm<br>• Working distance : 35mm,40mm focal length, NA : 0.13<br>• TFS beam : approx. min. 3-5um @ entrance aperture and Gaussian beam profile<br>325nm input source |

| | |
|---|---|
| • Should have a VIS CCD camera for sample Image and Monitoring system<br>• With IEEE 1394 interface<br>• Optical path and alignment adjustable function with variable ND filter for Laser power control<br>• High Brightness light source for Lighting and back alignment<br>• Direct laser input r and signal input to spectrograph<br>• Iris Diaphragm set for laser beam alignment<br>• System should have a manual shutter | • Should have a VIS CCD camera for sample Image and Monitoring system<br>• With IEEE 1394 interface (or) RS232<br>• Optical path and alignment adjustable function with variable ND filter for Laser power control<br>• High Brightness light source for Lighting and back alignment<br>• Direct laser input r and signal input to spectrograph<br>• Iris Diaphragm set for laser beam alignment<br>• System should have a manual shutter |
| **III. Closed cycle He cryostat with He- compressor set for PL with the following specs:**<br>Manual stage system for Cryostat movement with Al profiled table set.<br>• Operating temperature should be in the range : 10K-325K<br>• Cooling Power : 1.8-2.7 Watts at 20K<br>• Initial cooldown time : approx. 1 hour to 20K<br>• Subsequent cooldown time to base temp. : < 30 minutes<br>• Demountable optical first-stage radiation shield | **III. Closed cycle He cryostat with He- compressor set for PL with the following specs:**<br>Manual stage system for Cryostat movement with Al profiled table set.<br>• Operating temperature should be in the range : 10K-325K<br>• Cooling Power : 1.8-2.7 Watts at 20K<br>• Initial cooldown time : approx. 1 hour to 20K<br>• Subsequent cooldown time to base temp. : < 30 minutes<br>• Demountable optical first-stage radiation shield |

| **Demountable optical outer vacuum shroud** | **Demountable optical outer vacuum shroud** |
|---|---|
| • 2(two) 1.5 inch diameter clear optical quartz windows<br>• Reliable bellows style evacuation valve<br>• 50 Ohm high power heater installed on coldhead ,10-pin feedthrough with mating connector plug<br>• Silicon diode sensor installed and thermally anchored on the cryostat<br>• Standard Sample Holder for optical<br>• Second Silicon diode sensor thermallized to sample holder<br>• Included temperature controller and compressure<br>• Should have Installation kit and technical manuals ,Should Include Two stage direct drive Rotary vacuum Pump<br>• With oil mist trap & flexible hose 1M , Min. Pressure: 1x10¬-3 torr<br>• Pumping speed: 60l/min. & motor power: 200W | • 2(two) 1.5 inch diameter clear optical quartz windows<br>• Reliable bellows style evacuation valve<br>• 50 Ohm high power heater installed on coldhead ,10-pin feedthrough with mating connector plug<br>• Silicon diode sensor installed and thermally anchored on the cryostat<br>• Standard Sample Holder for optical<br>• Second Silicon diode sensor thermallized to sample holder<br>• Included temperature controller and compressure<br>• Should have Installation kit and technical manuals ,Should Include Two stage direct drive Rotary vacuum Pump<br>• With oil mist trap & flexible hose 1M , Min. Pressure: 1x10¬-3 torr<br>• Pumping speed: 60l/min. & motor power: 200W |

| | |
|---|---|
| **IV. 0.5m focal length Spectrograph should have the following specification**<br><br>• Side entrance slit and front exit port for CCD detector stepping motor scanning system with 32-bit microprocessor control.<br><br>• Should include Power supply and Monochromator Instruction manual (Monoscan basic control software is included)<br><br>• Resolution should be : 0.09nm @ 435.8nm (1200, 1800gr/mm grating), 10 um slits<br><br>• Focal length should be 0.5m,<br><br>• Optical path : Czerny-Turner type,<br><br>• Imaging Spectrograph by Toroidal Mirrors.<br><br>• Aperture must be f/4.2,<br><br>• Grating Turret: triple-grating (68 mm x 68 mm) turret<br><br>• Should have Interface of RS232 & USB standard Accuracy must be ± 0.2nm<br><br>• Repeatability: ±0.04nm | **IV. 0.5m focal length Spectrograph should have the following specification**<br><br>• Side entrance slit and front exit port for CCD detector stepping motor scanning system with 32-bit microprocessor control.<br><br>• Should include Power supply and Monochromator Instruction manual (Monoscan basic control software is included)<br><br>• Resolution should be : 0.09nm @ 435.8nm (1200, 1800gr/mm grating), 10 um slits<br><br>• Focal length should be 0.5m,<br><br>• Optical path : Czerny-Turner type,<br><br>• Imaging Spectrograph by Toroidal Mirrors.<br><br>• Aperture must be f/4.2,<br><br>• Grating Turret: triple-grating (68 mm x 68 mm) turret<br><br>• Should have Interface of RS232 & USB standard Accuracy must be ± 0.2nm<br><br>• Repeatability: ±0.04nm |

| | |
|---|---|
| • Drive-step size:0.0025 nm with 1800gr/mm<br>• Dispersion : 2.5nm/mm<br>• Preferred Focal-plane size: is 26mm wide x 14mm high<br>• A fixed diverter mirror assembly for entrance side port<br>• A micrometer controlled adjustable slit assembly for entrance and exit ports<br>• 0 to 5mm(10micrometer increment/decrement unit)<br>• Should have 32 bit control board<br>• Preferred Grating 3-1200-300,Ruled Grating 68×68mm,1800G/mm,300blz,200-500nm<br>• 1-120-750 Ruled Grating 68×68mm 1,800G/mm 750blz 500-1-300nm | • Drive-step size:0.0025 nm with 1800gr/mm<br>• Dispersion : 2.5nm/mm<br>• Preferred Focal-plane size: is 26mm wide x 14mm high<br>• A fixed diverter mirror assembly for entrance side port<br>• A micrometer controlled adjustable slit assembly for entrance ports with computer control.<br>• 0 to 5mm(10micrometer increment/decrement unit)<br>• Should have 32 bit control board<br>• Preferred Grating 3-1200-300,Ruled Grating 68×68mm,1800G/mm,300blz,200-500nm, 600G/mm, 500nm-1000nm<br>• 1-120-750 Ruled Grating 68×68mm 1,800G/mm 750blz 500-1-300nm |

| | |
|---|---|
| **V. Data Acquisition system should have minimum specs as follows:**<br><br>• CCD based<br>• Active Pixels is 1024x255<br>• Pixel Size is 26x26<br>• Image Area is 26.6x6.6<br>• Peak QE is 43% @ 600 nm<br>• 27% @ 250 nm<br>• Wavelength range is 200- 1000 nm<br>• Min Operating Temp is -70 @ water circulation<br>• Pixel Well Depth is 1000000<br>• FVB is 75<br>• Read Noise is 4e-@33KHz | **V. Data Acquisition system should have minimum specs as follows:**<br><br>• CCD based<br>• Active Pixels is 1024x255<br>• Pixel Size is 26x26<br>• Image Area is 26.6x6.6<br>• Peak QE is 43% @ 600 nm<br>• 27% @ 250 nm<br>• Wavelength range is 200- 1000 nm<br>• Min Operating Temp is -60°C<br>• Pixel Well Depth is 1000000<br>• FVB is 75<br>• Read Noise is 4e-@33KHz |
| **VI. Computer control system and Optical table:**<br>• should include latest configuration of PC with high speed processor and memory.<br><br>Optical table with pneumatic support system. | **VI. Computer control system and Optical table:**<br>• 3KV UPS, 30 Mins backup, online sin wave<br><br>• Suitable Optical table. |

| | |
|---|---|
| **Note:** Pre-installation/post-installation training expenses (including travel, boarding and lodging) should be born by the supplier. | **No amendment** |

**Dr. N. Gopalakrishnan**
Initiating faculty
Asso. Prof., Physics
NITT

**Dep. Registrar (Accts)**
Member (Ex-officio)
NITT

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

**05.11.2015**

**Minutes of the Pre-bid meeting**

**Tender Notification No.: NITT/F.No:SIF013/PLAN2015-16 dated 20/10/2015**

The Pre-bid meeting for the Low Temperature Photoluminescence was held on 05-11-2015 at 11.00 AM in the administrative block to discuss the specification published in the tender. The following suppliers and the committee members were present in the meeting. It was suggested by the committee to publish the tender with requested amendments in the institute website. It is also requested that suppliesrs should include recent purchase order for the reference.

Suppliers:

1. M/s.Laser Science Services (I) Pvt. Ltd, Navi Mumbai
2. M/s. Laser-Spectra services India Pvt.Ltd., Bangalore

Committee members participated:

**Dr. N. Gopalakrishnan** - Initiating faculty , Asso. Prof, NITT

**Dr.-Ing. M. Duraiselvam** - Asso. Prof./Asso. Dean, NITT

**Dr. J. Hemalatha** , Asso. Prof., Physics, NITT

**Dr. B. Karthikeyan**- AP, Physics, NITT

**Dr. D. Sastikumar**- Prof./ ~~Convener~~, NITT

**Dep. Registrar (~~Accts~~)**- Member (Ex-officio), NITT

Note: (The quaries raised by the suppliers is placed on the institute website will soon)

Signature of Supplier
**M/s Laser Science Serivce (I) Pvt.Ltd, Navi Mumbai**

Signature of Supplier
**M/s.Laser-Spectra Services India Pvt.Ltd., Bangalore**