



CSIR - NATIONAL PHYSICAL LABORATORY

(Council of Scientific & Industrial Research)

Dr. K. S. Krishnan Marg, Pusa, New Delhi -110 012

Tele Fax: +91 11 45608645, Fax: +91 11 45609310

Emails: spo@nplindia.org cosp@nplindia.org



From: Director, CSIR-NPL

Dt.:

Dear Sirs,

Sub.: INVITATION FOR PRE-INDENT CONFERENCE –Intimation Regarding

National Physical Laboratory (NPL), a premier R&D unit of Council of Scientific & Industrial Research, intends to procure the following items as per schedule follows (as per pointer advertisement placed at Annexure -II):

SN.	Ref. No.	Brief details of item(s)	Purpose	Date & Time of PIC	Venue
1.	14-IV/RM(50)12-PB	Combined Scanning Near Field Optical Microscope (NSOM) with Confocal Raman Imaging & Photoluminescence (PL) Measurement system.	To be used for studying near field generated due to surface plasmons, highly resolved topographic mapping and analyzing of fabricated quantum dots and other biological applications.	April 02, 2013 at 9.30 A.M.	Conference Room, Ground Floor, Main Building, CSIR- NPL, New Delhi -12
2.	14-III/RM(468)12-PB	A Blackbody based primary standard of optical radiation for spectral irradiance.	To establish spectral irradiance scale with lower uncertainty and hence, realize candela with least uncertainty.	April 03, 2013 at 11.00 A.M.	Conference Room, 2 nd Floor, Main Building, CSIR- NPL, New Delhi -12
3.	14-VI/SK(701)12-PB	Fully Automatic Hot Isostatic Press	To make isostatic moulds of carbon and composite materials by Hot Isostatic pressing.	April 15, 2013 at 2.30 PM	Conference Room, 2 nd Floor, Main Building, CSIR- NPL, New Delhi -12
4.	14-III/SC(470)12-PB	500 MHz High Resolution FT-NMR Spectrometer	To be used for establishment of chemical laboratory for synthesis and characterization of organic materials for solar cells application	April 22, 2013 at 2.00 PM	Conference Room, 2 nd Floor, Main Building, CSIR- NPL, New Delhi -12

In this regard, **Pre-Indent Conference (PIC)** are being organized to finalize the broad technical specifications of the required system(s) as mentioned above. Prospective OEMs or their Authorized Distributors, System Integrators having specialization and experience of such installations and their maintenance thereof are invited to make presentations followed by discussions on technology, design, features utility, technical parameters and other related Techno-commercial issues. The credentials, technical capability, financial standing & track record of vendors, will be evaluated, based upon PIC discussions and documents submitted by the interested parties. For this purpose brief details and purpose of requisite equipment is enclosed at Annexure –I.

Further the detailed scope of PIC and other conditions can be seen on NPL website: <http://www.nplindia.org> under “Tenders/Pre-Indent” → “Pre-Indent Conference Notifications” link. Parties willing to participate must send a formal communication and queries, if any, to Controller of Stores & Purchase (emails: cosp@nplindia.org / spo@nplindia.org), in advance.

Interested parties willing to take part in the above said PIC are requested to submit the documents to prove their Technical Capabilities, Client List, Financial Capabilities, Experience and Credentials at the time of attending of PIC along with Vendor Registration Form as per Annexure -III. A Line of confirmation in this regard may be sent.

Thanking you,

Yours Faithfully,

Encl: A/A

(Tariq Badar)

Controller of Stores & Purchase

Ref. No.: 14-IV/RM (50)12-PB**Details of requirement**

Combined scanning Near field optical microscope (NSOM) with Confocal Raman Imaging System and Photoluminescence (PL) measurement system for high resolution study of interference, diffraction, non-linear optical studies, optical switching, optical modulation etc. in various types of nanophotonics, plasmonics structures with multiple laser beam input facility.

Following are the broad requirements which need to be covered in the presentation.

- Microscope - A research grade Confocal Microscope
- Sample Size – Samples of at least 100 mm x 100 mm (X-Y) and 30 mm in Z
- Manual and motorized sample stage for translation on XY&Z
- Piezo Scanner Closed Loop to be able to cover all modes of operation with large area scanning capabilities
- Scanning Near-field Optical Microscopy – Appropriate SNOM probes based with Reflection, Transmission and Collection mode.
- Suitable PMT/APD
- Raman scanning, 3D Raman imaging and Raman depth profile.
- Spectrometer – should be with high throughput within the spectral range 200-2500nm.
- Optimized CCD, TE cooled based on laser lines
- Photoluminescence Module with CCD and InGaAs detector with detection range of up to 1.5 μm or more
- Lasers – at least following lasers with the system -
 - 532 nm for SNOM and Raman Measurements
 - 325 & 355 nm for PL measurements
 - 785 nm for Raman measurements
- Controller – latest generation controller.
- Software – user friendly software with advanced post processing capabilities is essential.
- Suitable Active Vibration Isolation System
- The vendor must support with details of where the combined system has been offered and is installed both within & outside India.

The vendors are expected to bring with them a document with their specifications for each of the above requirements.

Ref. No.: 14-III/RM (468)12-PB**Primary standard of optical radiation for spectral irradiance**

High temperature blackbody (~ 1800 - ~ 3500 K), with power supply, cooling system and feedback system for current and temperature stabilization.

Spectral irradiance calibration comparator (~ 200 - 2500 nm), including translation stages, double monochromator, detectors (PMT, Si-photodiode, IR detectors) with amplifiers, lockin amplifier, optics and alignment utilities etc.

Filter radiometers (calibrated) with alignment mounts, thermostat, millimeters etc.

High temperature fixed point radiation thermometers.

Standard spectral irradiance lamps with setup, including power supply, shunt resistances, multimeters, alignment utilities etc.

Fully automatic operation with suitable software.

Installation, Onsite testing and training.

Ref. No.: 14-VI/SK(701)12-PB**Fully automatic Hot Isostatic Press****Broad Specifications/Special Features (essential) :**

To make isostatic moulds with uniformly densification of carbon and composite materials of Size dia. 80 mm & length 200mm (approx.) and minimum porosity and other micro-defects, refines the grain structure .

1.	Working Pressure	:	30,000 PSI (< 200 MPa)
2.	Working Temperature	:	1200°C
3.	Internal diameter of Pressing vessel	:	8 to 10 inches (200 - 250 mm)
4.	Length of the Pressing vessel	:	28 - 30 inches (700 -760 mm)
5.	Vessel Type	:	ASME coded pressure vessel with suitable closure type.
6.	Hot Zone	:	100 mm dia. X 250 mm length
7.	Pressure measurement & Control	:	with branded Transducer & automatic control
8.	Temperature measurement & control:		should be done by standard thermocouple with fully automatic control system.
9.	Stability of temperature & pressure :		with highest order of stability
10.	Safety Precaution	:	The system should have full safety features.

Ref. No.: 14-III/SC(470)12-PB**Technical Specifications for 500 MHz high resolution FT-NMR Spectrometer**

Vendor must confirm the technical feature of the system with documentary proof and send compliance statement of each and every feature. Vendor must highlight the best features other than the tendered features of the system.

Magnet:

1. Latest Technology based stable and actively shielded superconducting magnet (11.74 Tesla) with an operational frequency of 500 MHz for ^1H . Vendor should quote their latest model.
2. Shortest possible 5G (radial and axial distance from the centre of the magnet).
3. Magnet should be standard room temperature bore. (Bore diameter ~ 54 mm).
4. Expected field drift 6 Hz/hr or less.
5. Liquid helium hold time should be 50 weeks or more.
6. Liquid Nitrogen hold time should be 14 days or more. The exact refill volume should be mentioned.
7. All support equipments for cryostats with all accessories for liquid helium and liquid nitrogen transfer line and controls.
8. Number of cryo-shims (minimum of three cryo-shims).
9. Minimum of 20 or more room-temperature shim coils for best possible resolution.
10. Anti-vibration feet pad for dampening the floor vibrations (please specify the lower limit on the frequency of vibrations damped).
11. Please specify the overall Magnet dimensions/ceiling height necessary.
12. Level meters for both liquid Nitrogen and liquid Helium level and alarm (better if digital).
13. Standard test samples for multinuclear studies
14. RF-testing cables

Spectrometer Console:

1. Advanced feature based two broadband frequency generation independent RF channels (full frequency range generation) with highest frequency and phase resolution; fast switching time for all parameters, without any hidden delays along with its importance in the quality of the spectra. It should include wave form generators for pulse shaping, amplitude, phase and composite pulse decoupling generator, preamplifiers with standard filters and digital receiver control with oversampling and quadrature detection with digitizer's facility for complete elimination of quadrature spikes.
2. Amplitude, phase and composite pulse decoupling generator, amplifiers, 100 W proton and 300 W multinuclear preamplifiers, ^2H preamplifier for lock and ^2H experiment, filters and receiver controls may please be specified with representative spectra.
3. Digital lock channel. Lock system with high precision phase- and field-correction, corrections for short-term disturbances.
4. Receiver system with high dynamic range and minimal quadrature images and artifacts.
5. 2-Channel Amplifier System: Two high performance linear amplifiers for observation- or decoupling of ^1H or ^{19}F , in the range of ^{31}P to ^{15}N or better. All relevant parameters including power, frequency range, duty cycle, maximum pulse duration etc. have to be explicitly specified.
6. Built-in tune/match display
7. Add-on filters for noise reduction
8. Automated gradient shimming for 1D and 2D. Automation of lock, spin, insert/eject and shim.
9. Low and high-temperature accessories. Variable temperature unit include: Controller should be for long term temperature stability, High and Low temperature range: (Ambient to approx. $+150^\circ\text{C}$ to -100°C)
10. Should be solid state ready.

Probes:

1. 5 mm multinuclear broadband observe probehead with Z-shielded gradient, capable of performing ^{19}F NMR using the same probe head. Automatic tuning and matching (ATM).
2. Broadband observe with ^{19}F and ^{31}P to ^{15}N that is capable of decoupling both ^1H / ^{19}F .
3. Sample tube diameter: 5 mm.
4. Variable temperature operation: -90°C to $+140^\circ\text{C}$, Built in Z-Gradient coil for PFG and Digital lock

Auto sampler and spinner:

An auto sampler with 24 or more numbers of sample holders

User Interface:

1. High performance state-of-the-art workstation (Windows operating system) for acquisition and processing that can be easily serviced in India in case of any fault:
24" LED/TFT monitor, one terabyte Hard Disk, 3 GHz Processor, 6 GB RAM etc.
CD-DVD read-write drives
USB Ports, High performance printers, 2 no.s (Laser color and B/W)
Scanner (resolution of 2400 dpi)
2. Licensed Software Modules include:
 - a) Acquisition, Processing, Plotting, Structure Verification and Analysis-1D and 2D (HSQC, TOCSY, COSY, HETCOR, NOESY, HMBC, DOSY etc.), Experiment Simulation, Spectra Simulation, Multiplet Analysis, Teaching Software, Deconvolution, Automation, Projection Reconstruction Spectroscopy.
 - b) The vendor should provide two floating licenses along with one processing PC (with latest configuration) for off-line processing (Processing, Plotting, Structure Verification, Experiment Simulation, Spectra Simulation, Multiplet Analysis, Teaching Software, Deconvolution, Automation, Projection Reconstruction Spectroscopy).
 - c) One additional workstation, NMR software with the instrument and 2 extra user licenses for data processing.

All required hardware and software documents, manuals, installation CDs/DVDs etc. to be provided.

Accessories:

1. 2 containers of ~ 50 litres capacity along with liquid Nitrogen transfer line required for regular filling of liquid Nitrogen in the cryomagnet.
2. One trolley for transporting for ~ 50 litres Cryocans.
3. 500 NMR tubes with caps.
4. An ISO-9001 certified imported oil-free scroll air-compressor complete with dryer with proper ratings and specification capable of catering all the needs, with a sufficiently big buffer tank along with the system.

Power backup:

1. A suitable ISO-9001 certified Indian-make online UPS (10 KVA) for the whole system with a minimum backup of 1 hour.

Installation:

1. The helium required for installation should be provided by the NMR supplier at their expense. The vendor must also to top up the helium level to 100% level after the magnet charging.
2. It is also responsible of the vendor to procure and refill the liquid Helium for 5 years from the date of installation.

Warranty:

1. Comprehensive on-site warranty for 5 years for the entire instrument and accessories excluding consumables from the date of satisfactory installation of the spectrometer.
 - (a) All parts including accessories and labor
 - (b) Free maintenance and service

- (c) Regular upgrades to all software during the entire warranty period
- (d) As the instrument will be installed in our campus, NPL.
- (e) Vendor should provide a certificate that they will provide the spares in future at least for ten years.
- (f) Vendor should provide insurance up to the delivery point (on-site not up to the nearer international airport) and until the time of installation.

Training:

1. Initial on-site training of the staff (one week), update every six months (1-2 days) for the first two years.

Optional Items:

1. Attachment of Solid state probe. Vendor should quote separately all requirements for attaching solid state probe with the price of the probe.
2. AMC for 5 years after the expiry of standard 5 years warranty.

General information required:

1. The technical specifications should be quoted in the same manner as described in the technical specifications desired in the tender.
2. Detailed specification as well as price for various items should be mentioned in the quotation (price bid).
3. The vendor should provide a total number of 500 MHz NMR instrument installed by the vendor in India from 2008, January.
4. Room size requirements for the magnet and console.
5. Indicate other accessories such as power requirements, air conditioning, N₂ gas requirements etc. that need to be acquired from other sources.



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PRE -INDENT CONFERENCE NOTICE No: 19/2012

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Sd/-
(Controller of Stores & Purchase)

VENDOR'S INFORMATION FORM

[The interested party shall fill in this form and should submit at the time of attending PIC. This should be done on the letter head of the firm]

1. Vendor's Legal Name :

2. Vendor's actual or intended Country of Registration :

3. Vendor's Legal Address in Country of Registration :

4. Vendor's Authorization Representative Information

Name :

Address :

Telephone/Fax numbers:

Email Address :