

INDIAN INSTITUTE OF SCIENCE EDUCATION AND
RESEARCH-THIRUVANANTHAPURAM
[IISER-TVM]

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IISER/PUR/PT/25/10

3rd March 2011

INVITATION TO TENDER

Dear Sirs,

SUB: SCANNING MICROSCOPES

Sealed **TWO - PART** Tenders are invited for above items as per **SCHEDULE** attached. **Instructions to Tenderers [Indigenous & Imports]** are also attached.

The due date for receipt of Tenders is 24TH MARCH 2011 [3 PM]. Late and delayed offers will not be considered under any circumstances.

Thanking You,

Yours Faithfully


CONSULTANT
(PURCHASE & STORES)

IISER-TVM
PUBLIC TENDER NO. IISER/PUR/PT/25/10
SCHEDULE

I. TENDER No. IISER/PUR/1103/10

UPRIGHT CONFOCAL LASER SCANNING MICROSCOPE SYSTEM.

The confocal microscope system should be state-of-the-art technology suitable for Biological and Materials applications. The system should be capable of high sensitivity detection meeting various needs of modern biological applications including live cell imaging with FRAP, FRET, FLIP, photo-activation and photo-conversion experiments.

The system should be offered with the following configuration:

A Fully automated and computer controlled LSM on upright fluorescence microscope

1. System should be capable of bright field, DIC and epifluorescence detection along with accessories for confocal scan head attachment.
2. All motorized functions of microscope should be controllable by a dedicated TFT/LCD screen.
3. Z-focus drive should be motorized with minimum z-step resolution of 15 nm or better.
4. X-Y scanning motorized specimen stage with universal sample holder along with mechanical control lever. Additional stage option should be available. Stage should move in XYZ direction to accommodate multiple samples at a time. It should accommodate sample box of 1-2 inch distance.
5. High resolution Plan Apochromat objectives: 2.5x objective for large FOV, 10x/0.45 NA, 20x/25x/0.7 or more NA, multi immersion, 40x/0.95 NA, 60/63x/1.40 NA oil immersion and 100x/1.40 NA oil objectives with complete DIC accessories. Additional 40x/1.3 NA oil immersion, 60x/63x/1.20 NA water immersion with complete DIC accessories should be offered under options. Additional long distance water immersion objectives should be suitable to observe samples from a distance of 0.9 cm preferably with 0.95 apertures. For this purpose additional Objectives should also be provided: 40x/1.1 w DIC vis-ir (long distance), "Apochromat" 40x/1.2NA, DIC uv-vis-ir, "Apochromat" 63x/1.2NA.
6. System should have at least a 6 position motorized fluorescence filter wheel and 6 position motorized DIC nose-piece elements.
7. Fluorescent filters for DAPI, FITC/GFP, CFP, YFP, Cy3, Cy5 and TexasRed should be offered.
8. 12V/100w halogen illumination for transmitted light
9. High power, 120W or more with long lifetime, metal halide illumination for fluorescence.

Continued.....2

10. An appropriate anti-vibration table for the entire microscope and laser scanning system.
11. A high resolution cooled CCD Digital camera with cooling of -20°C with 1.4 million pixel chip resolution and 12 megapixel digital resolution, controlled by the same confocal software for high resolution fluorescence imaging should be offered as an optional accessory.

Spectral confocal point scanning laser scan head with built-in detectors

B

- 1) High sensitivity confocal laser scanning and detection unit with built-in spectral detectors for highly efficient fluorescence signal collection.
- 2) Scan head should have capability of simultaneous detection and separation of at least four fluorophores. Scan heads, if capable of simultaneous detection and separation for more fluorophores should be indicated.
- 3) The detection unit should be capable of conventional intensity based confocal imaging and spectral confocal imaging for all channels.
- 4) All the fluorescence detectors of the scan head should be filter free and with freely selectable emission bandwidth detection capability to suit to the emission spectra of the dyes.
- 5) The spectral dispersion of the emission light should be based on either reflection grating with enhanced/improved spectral signal collection device or with prism based spectral dispersion.
- 6) The system should be capable of recording emission spectra with minimum spectral resolution of 5 nm or better.
- 7) Laser scan optics should cover the entire wavelength range from 350 to 1100 nm and should have simultaneous laser coupling ports for UV, Visible and IR lasers.
- 8) Confocal pinhole size should be continuously variable with software control.
- 9) High speed XY galvo scanner with at least 180 deg scan rotation with total scan flexibilities of line, free hand curved line, XY, and multidimensional combinations.
- 10) Maximum scan resolution should be at least 5Kx5K for all channels.
- 11) The scan field diagonal should be at least 20 mm.
- 12) Scan Zoom range 1.0 X to 4X or more and should be adjustable in steps of 0.1.
- 13) System should be capable of doing FRAP, FLIP, photoactivation, photoconversion and photobleaching experiments.
- 14) An additional transmitted light detector should be offered for bright field and DIC imaging.
- 15) Advanced 3D deconvolution software to reconstruct surface image should be quoted with the equipment.
- 16) Specialized techniques to enhance transmission and detection such as AOBS/GaAsP or similar should be included.

C Laser Module

- (a) Visible laser module with laser lines of
1. Multiline Ar laser with 458/488/514 nm.
 2. DPSS laser with 561/543 nm.
 3. HeNe laser with 633 nm.
 4. Blue Diode (UV) Laser 405/408/438/440nm, minimum 20 mw, with dual function of CW/Pico second pulse for future up gradation to FLIM should be offered

All offered lasers should indicate respective wattage and should be controlled through a computer controlled AOTF for fast laser switching and attenuation in synchrony with the scanner.

All lasers should be connected to the scan head through fibre optic cables.

D Control Computer

Suitable computer system along with required operating system to drive the microscope and process acquired data.

E System control and Imaging software

The software should control all motorized functions of microscope, the digital camera, the scan head, the lasers including AOTF and image acquisition and processing.

1. All imaging and system parameters should be automatically stored with the image and easily retrievable for reproducible imaging.
2. Line, curved line, frame, Z-stack, time series imaging capabilities.
3. Real ROI bleach for FRAP, photo-activation and photo-conversion experiments.
4. FRET imaging as well as quantitative data analysis capability.
5. Standard geometrical measurements like length, areas, angles etc along with intensity measurements.
6. 3D image reconstruction/rendering from a Z-stack image series.
7. Co-localization and histogram analysis with individual parameters.
8. Spectral un-mixing and emission fingerprinting with separation of overlapping emission spectra of fluorophores.
9. Additional Topography software for materials applications should be offered under option.
10. Additional macro software conferring ability to visually develop macros for complex experimental setup with multi tasking (visual macro editor) should be offered under options.
11. Software for image based correlation spectroscopy should be offered under options.
12. System should be capable of online separation and display of overlapping emission signals.

F Installation and Service

- Bidder should clearly specify the after sales service and application support capabilities. Bidder should provide 4 yrs warranty for all components including lasers, camera, motorized stage, software and 4 years of service and maintenance support at no additional cost.
- Bidder should include the supply of appropriate online UPS system to support the complete system including lasers.
- Bidder should provide all pre-installation requirements to have the

system installed in ideal room conditions.

- Bidder should also provide a detailed list of users of the quoted system in India with contact details.
- Bidder should dismantle and reinstall the whole system from our present transit campus to IISER permanent campus at Vithura at no additional cost.

II. TENDER No. IISER/PUR/1104/10

INVERTED CONFOCAL LASER SCANNING MICROSCOPE SYSTEM.

The confocal microscope system should be state-of-the-art technology suitable for Biological specimen imaging applications. The system should be capable of high sensitivity detection meeting various needs of modern biological applications including live cell imaging with FRAP, FRET, FLIP, photo-activation and photo-conversion experiments.

The system should be offered with the following configuration:

A Fully automated and computer controlled inverted fluorescence microscope

1. System should be capable of bright field, DIC and epifluorescence detection along with accessories for confocal scan head attachment.
2. All motorized functions of microscope should be controllable by a dedicated TFT/LCD screen.
3. Z-focus drive should be motorized with minimum z-step resolution of 15 nm or better.
4. Three axis (X,Y,Z) motorized stage with linear encoding for 0.1 nm movements controlled by a joystick or from computer. Inserts to hold 1"x3" slides, 35mm dishes, 60mm dishes and multiwell plates should be included.
5. High resolution Plan Apochromat objectives:
10x/0.4 NA, 2
20x/25x/0.70 or more NA multi immersion,
40x/1.2 NA DIC, oil
40x/0.8 or more NA, Dry
60/63x/1.40 NA oil immersion, DIC
100x/1.40 NA oil, DIC
with complete DIC accessories. Additional 60x/63x/1.30 NA water immersion with complete DIC accessories should be offered under options.
6. System should have at least a 6 position motorized fluorescence

- filter turret and 6 position motorized DIC nose piece elements.
7. Fluorescent filters for DAPI, FITC/GFP, CFP, cy3, TRITC/Rhodamine, cy5, YFP should be offered.
 8. A metal halide light source (120 W or more) with liquid lightguide for epifluorescence such as Exfo X-Cite or Prior LumenPro.
 9. An anti-vibration table capable of damping extremely low frequency (10 Hz) vibrations
 10. A high resolution cooled monochrome CCD Digital camera (cooling temp -20degree C or below).
 11. A stage top incubator that is compatible with the motorized stage and all of its sample holders for long term live cell time lapse imaging with temperature, CO₂ control should be quoted. The system should be equipped with a gas mixer which can premix 100% CO₂ and air to supply 5% CO₂ (+/- 0.1%) to the chamber and a peltier based temperature controlling system with +/- 0.1 degree temperature stability.
 12. A stand alone laser or LED based focus drift compensation mechanism for the long-term time lapse imaging should be equipped with the instrument.

B Spectral confocal point scanning laser scan head with built-in detectors

1. High sensitivity confocal laser point scanning and detection unit with built-in spectral detectors for highly efficient fluorescence signal collection.
2. Scan head should have capability of simultaneous detection and separation of at least 5 fluorophores. Scan heads, if capable of simultaneous detection and separation for more fluorophores should be indicated.
3. The detection unit should be capable of conventional intensity based confocal imaging and spectral confocal imaging for all channels.
4. All the fluorescence detectors of the scan head should be filter free and with freely selectable emission bandwidth detection capability to suit to the emission spectra of the dyes.
5. The spectral dispersion of the emission light should be based on either reflection grating with enhanced/improved spectral signal collection device or with prism based spectral dispersion.
6. The system should be capable of recording emission spectra with minimum spectral resolution of 5 nm or better.
7. Laser scan optics should cover the entire wavelength range from 350 to 1100 nm and should have simultaneous laser coupling ports for UV, Visible and IR lasers.
8. System should be capable of online separation and display of overlapping emission signals.
9. Confocal pinhole size should be continuously variable with software

control.

10. High-speed XY galvo scanner with at least 180 deg scan rotation with total scan flexibilities of line, free hand curved line, XY, and multidimensional combinations.
11. Maximum scan resolution should be at least 5Kx5K for all channels.
12. The scan field diagonal should be at least 20 mm.
13. Additional spectral based fast scanner with image resolution of 512x512 or above and with scan speed 25 frames/sec or more should be equipped with the system. Simultaneous use of both fast scanner and conventional scanner without compromising resolution and speed should be possible. This should be ideally suitable for application such as photoactivation, photoconversion or similar fast events.
14. The laser scanner should have dual scan capability of fast ROI scan for bleaching/photo-activation and normal scan for imaging, of any irregular shape to conduct experiments like FRAP, FLIP, photo activation, photo-conversion and photo-bleaching. The systems that do not have such dual scan capability should include a separate laser scanner for bleaching, photo-activation and photo-conversion.
15. An additional transmitted light detector should be offered for bright field and DIC imaging.
16. Specialized techniques to enhance transmission and detection such as AOBS/GaAsP or similar should be included in the main offer.

C Laser Module

- a) Visible laser module with laser lines of
 1. Multiline Ar laser with 458/488/514 nm.
 2. DPSS laser with 561 nm.
 3. HeNe laser with 633 nm.
 4. Blue Diode (UV) Laser 405/408nm, minimum 20 mw.
 5. Laser control and focusing module capable of FRAP, FRET, Photoactivation and photo-conversion of a 0.2 um spot. All offered lasers should indicate respective wattage and should be controlled through a computer controlled AOTF for fast laser switching and attenuation in synchrony with the scanner. All lasers should be connected to the scan head through fibre optic cables.

D Control Computer

State-of-the-art control computer with high end processor.

Pentium Core 2 duo- E8400 or higher; RAM : 4 GB or above
DDR2 667, minimum 2 x 1 TB Hard disks SATA II, DVD super
Multi SATA + R/RW, Graphics card ATI Fire GL V5600 768 MB or higher,
Gigabite Ethernet, multiport for USB 2.0, large
high resolution 30" LCD TFT monitor or dual 20" LCD TFT monitors.

An additional computer system for offline image analysis purpose should be provided.

E System control and Imaging software

1. A system software which should be able to control all motorized functions of microscope, stage, the digital camera, all scanners, the lasers including AOTF and image acquisition and processing.
2. An offline version of the software in addition to the system-run software should be provided.
3. All imaging and system parameters should be automatically stored with the image and easily retrievable for reproducible imaging.
4. Capable to run X-Y-Z time lapsed and fix sample imaging.
5. Line, curved line, frame, Z-stack, time series imaging capabilities, object or particle tracking and analysis of parameters.
6. Making movies from time lapsed Z-stack images.
7. Real ROI bleach for FRAP, photo-activation and photo-conversion experiments.
8. FRET imaging as well as quantitative data analysis capability.
9. Standard geometrical measurements like length, areas, angles etc along with intensity measurements.
10. 3D image reconstruction/rendering from a Z-stack image series.
11. Co-localization and histogram analysis with individual parameters.
12. Spectral un-mixing and emission fingerprinting with separation of overlapping emission spectra of fluorophores.
13. Capable of running image deconvolution module and analysis.
14. Advanced 3D deconvolution software module should be quoted.
15. Additional advanced FRAP software and macro software conferring ability to visually develop macros for complex experimental setup with multi tasking (visual macro editor) should be offered under options.
16. Software for image based correlation spectroscopy should be offered under options.

F Installation and Service

- Bidder should clearly specify the after sales service and application support capabilities. Bidder should provide 4 yrs warranty for all components including lasers, camera, motorized stage, CO2 incubator, software and 4 years of service and maintenance support at no additional cost.
- Bidder should include the supply of appropriate online UPS system to support the complete system including lasers.
- Bidder should provide all pre-installation requirements to have the system installed in ideal room conditions.
- Bidder should also provide a detailed list of users of the quoted system in India with contact details.
- Bidder should dismantle and reinstall the whole system from our present transit campus to IISER permanent campus at Vithura at no additional cost.

SPECIAL CONDITIONS

1. EFFICIENCY EVALUATION:

In order to evaluate the efficiency of specialized transmission and detection systems, following data need to be provided along with the quotation:

- a) Transmission efficiency of the dichroic and dispersion elements across the spectral range [400 – 700 nm]. High transmission efficiency is essential.
- b) Quantum efficiency of the detection system across the spectrum for array detectors [400 – 700 nm]: High Quantum efficiency of 20% or above is required across the spectral range.

2. WARRANTY:

Four years warranty should include all components including but not restricted to all lasers, all detectors, camera, motorized stage, CO2 incubator and software.

3. COMPLIANCE STATEMENT

Along with the technical details provide a tabular column indicating whether the equipment quoted by you meets the specifications by indicating 'YES' or 'NO'. If 'YES', support the claim by providing original brochures.

4. SEPARATE TENDERS

Separate sealed bid for each Tender shall be submitted.

5. TWO – PART TENDER


PART I – TECHNICAL BID:

Consisting of all Technical details alongwith commercial terms and conditions.

PART II – PRICE BID:

Showing item-wise prices for the items mentioned in the Technical Bid.

The technical bid and the Price bid should be in separate sealed and superscribed covers. Both these covers are to be put in a sealed bigger cover superscribing Tender No and due date. Technical bids will be opened first and after evaluation, price bids of only the shortlisted bidders will be opened.


CONSULTANT
[PURCHASE & STORES]

IISER – TVM
INSTRUCTIONS TO TENDERERS [INDIGENOUS].

1. Tenders should be sent in sealed envelopes superscribing the relevant tender no. and the due date of opening. Only one tender should be sent in each envelope.
2. Late tender and Delayed Tenders will not be considered under any circumstances.
3. Sales Tax and /or other duties/levies where legally levies and intended to be claimed should be distinctly shown separately in the tender.
4. (a). Your quotation should be valid for a minimum period of 60 days from the date of opening of the Tender. Quotation with firm prices will be preferred.
(b). Prices are required to be quoted according to the units indicated in the Invitation to Tender. When quotations are given in terms of units other than those specified in the tender form, relationship between the two sets of units must be furnished.
5. (a) Preference will be given to those tenders offering supplies from ready stocks and on the basis of delivery at IISER site.
(b) Preference will also be given to those who agree our payment terms of within 30 days of receipt and acceptance of the item at our site.
6. (a) All available technical literature, catalogues and other data in support of the specifications and details of the items should be furnished along with the offer.
(b) Samples, if called for, should be submitted free of all charges by the tenderer and the IISER shall not be responsible for any loss or damage thereof due to any reason whatsoever. In the event of non-acceptance of tender, the tenderer will have to take back the samples at his own expense.
(c) Approximate net and gross weight of the items offered shall be indicated in your offer. If dimensional details are available the same should also be indicated in your offer.
(d) **Specifications:** Stores offered should strictly conform to our specifications. Deviations, if any should be clearly indicated by the tenderer in their quotation. The tenderer should also indicate the Make/Type number of the stores offered and provide catalogues, technical literature and samples, wherever necessary along with the quotations. Test Certificates wherever necessary should be forwarded along with supplies. Whenever specifically mentioned by us the tenderer could suggest changes to specifications with appropriate reasons for the same.
7. IISER shall be under no obligation to accept the lowest or any tender and reserves the right of acceptance of the whole or any part of the tender or portion of the quantity offered and the tenderers shall supply the same at the rates quoted.
8. Corrections, if any, in the Quotation must be attested. All amounts shall be indicated both in words as well as in figures. Where there is difference between amounts quoted in words and figures, amount quoted in words shall prevail.
9. The tenderer should mention the name of his bankers, Sales Tax Registration, PAN number etc in the tender.
10. The authority of the person signing the tender, if called for, should be produced.
11. The purchaser reserve the right to accept or reject the lowest or any other offer in whole or in part without assigning any reason.
12. IISER being a Govt of India Educational and Research Institute, is exempted from payment of Excise Duty and Customs Duty under Notification No. 51/96- Customs dated 23rd July 2009. Also, we can issue Form 16 as per VAT Rules.
13. There is no EMD or Tender Cost.


CONSULTANT
(PURCHASE & STORES)

IISER-TVM
INSTRUCTION TO TENDERERS [IMPORTS]:

1. **PRICE:** The price quoted shall be firm. The terms of FOB/EXW/FCA/CIF/CIP etc shall be clearly mentioned.
2. **AGENT & AGENCY COMMISSION:** In case Tenderer is represented by any agent in India, their name and address shall be furnished. The amount of commission included in the price shall be clearly shown in the offer; which will be paid directly to the Indian Agents by purchaser in equivalent Indian Rupees. In case Indian agents existing and their agency commission is not shown in the Tender, reasons for the same shall be clearly mentioned in Tender. Details of Indian agent's statutory registration shall be stated. If Agency Commission is paid by Principals in foreign currency, the reasons for the same and exemption from Enforcement Directorate in India shall also be provided.
3. **LEAFLET/CATALOGUE:** Tenderer should furnish all necessary leaflet/catalogue etc., of the stores offered by him to enable the Purchaser to evaluate his offer correctly.
4. **MODE OF DESPATCH:** Tenderer shall indicate the mode of dispatch (*i.e.*, Sea/Air-freight/Parcel Post, etc.) depending upon the normal mode of dispatch adopted by him for the type of stores offered for consideration of the Purchaser.
5. **COUNTRY OF ORIGIN:** Tenderer shall indicate in his offer the country of origin of goods offered and the name and address of the manufacture.
6. **INSURANCE:** If insurance of the goods is felt necessary, the same shall be advised by the Tenderer in the offer.
7. **DELIVERY/SHIPMENT:** The time for and date of delivery quoted shall be reasonable/realistic and shall strictly be adhered to in case of placing order on the Tenderer.
8. **MODE AND TERMS OF PAYMENT:** Payment in full (excluding the amount of Agency Commission included in the price payable directly by the Purchaser to the Indian Agents in Indian Rupees) will be made immediately on presentation of the prescribed documents against SIGHT DRAFT or LETTER OF CREDIT.
9. **WARRANTY:** Period of warranty and conditions shall be clearly mentioned in the Tender.
10. **GENERAL:** The Tenderer shall also be complied with the following:
 - a. Mention your Banker's name and address.
 - b. Show approximate net and gross weight and dimensions of packages/cases.
 - c. Furnish list of recommended spares for satisfactory operation for a minimum period of one year if the quote is for Plant & Machinery, Equipments etc.
 - d. Details of any technical service, if required for erection assembly, commissioning and demonstration.
 - e. Conform that the prices quoted are inclusive of all taxes, levies, duties arising in the tenderer's country.
 - f. The offer is valid for a minimum period of 90 days from the due date of opening of the tender.
 - g. Samples, if called for, will be sent free of all charges.
 - h. Late tenders and Delayed will not be considered.
 - i. Offers made by Indian Agents on behalf of their Principals, should be supported by the Proforma Invoice of their Principals.
 - j. The authority of person signing the tender, if called for, shall be produced.
 - k. The purchaser reserves the right to accept or reject the lowest or any other offer in whole or in part without assigning any reason.