Global tender for the supply of

Confocal Microscope with time resolved measurement capabilities and Cryostat

to Indian Institute of Science Bangalore.

Contents

This is a global tender for the supply of Confocal Microscope with time resolved measurement capabilities and Cryostat.

Section 1 - Bid Schedule

1	Tender No	CeNSE-SKS/2025/NQM/01/02
2	Tender Date	09th October 2025
3	Item Description	Confocal Microscope with time resolved measurement capabilities and Cryostat
4	Tender Type	Two bid system (i) Technical Bid (Part A) (ii) Commercial Bid (Part B)
5	Place of tender submission	Chairperson Office, First Floor, Centre for Nano Science and Engineering Indian Institute of Science, Bangalore 560012
6	Last Date & Time for submission of tender	30th October 2025, 5 PM IST
7	For further clarification	Prof. Shankar Kumar Selvaraja CeNSE, Indian Institute of Science Bangalore – 560012, India. shankarks@iisc.ac.in

Section 2 – Eligibility Criteria

Prequalification criteria:

1. The Bidder's firm should have existed for at least 5 years. Bidders should enclose the Company Registration Certificate.

2. Only the Original Equipment Manufacturer or their authorized representatives across the globe shall participate in the bid.

3. The quotations should be CIP-Bangalore Airport.

4. The bidder should sign and submit the declaration for Acceptance of Terms and Conditions as per -Annexure 4.

5. The Bidder must not be blacklisted/banned/suspended or have a record of any service- related dispute with any organization in India or elsewhere. A declaration to this effect has to be given as per Annexure 3.

6. The order will be placed only on the bidder who participated in the bid.

Section 3 – Terms and Conditions

A) Submission of Tender:

1. All documentation in the tender should be in English.
2. Tenders should be submitted in two envelopes (a two-bid system).
    a. Technical Bid (Part-A) – Technical bid consisting of all technical details and checklist for conformance to technical specifications.

       The technical proposal should contain a technical compliance table with five columns.

       I. The first column must list the technical requirements in the order given in the technical requirement below.
       II. The second column should provide instrument specifications against the requirement. Please provide quantitative responses wherever possible.
       III. The third column should describe your compliance with a "Yes" or "No" only. Ensure that the entries in column 2 and column 3 are consistent.
       IV. The fourth column should state the reasons/explanations/context for deviations, if any.
       V. The fifth column can contain additional remarks from the OEM. You can use this opportunity to highlight technical features, qualify responses of previous columns, provide additional details, compare your solution with your competitors, or provide details as requested in the technical requirements table below.

    b. Commercial Bid (Part-B) – Indicating item-wise price for the items mentioned in the technical bid, **as per the format of quotation provided in the tender** and other commercial terms and conditions.

3. The technical bid and price bid should be placed in **separate sealed covers**, superscribing the tender description, tender no., and the due date on both envelopes. Both these sealed covers are to be placed in a bigger cover which should also be sealed and duly superscripted with the Tender No, Tender Description & Due Date.

4. The SEALED COVER should reach the Chairperson Office, First Floor, Centre for Nano Science and Engineering Indian Institute of Science, Bangalore 560012, on or before the due date mentioned in the tender notice. If the due

date is a holiday, the tender will be accepted on the next working day. If the quotation cover is not sealed, it will be rejected.

5. All queries are to be addressed to the person identified in "Section 1 – Bid Schedule" of the tender notice.

6. GST/other taxes, levies, etc., should be indicated separately. The BIDDER should mention GST Registration and PAN in the tender document, if applicable.
7. If the price is not quoted in the Commercial Bid as per the format provided in the tender document, the bid is liable to be rejected.
8. The purchase committee reserves the right to accept or reject any bid and annul the bidding process and reject all bids at any time prior to the award of the contract without thereby incurring any liability to the affected bidder or bidders or any obligation to inform the affected bidder or bidders.

9. Incomplete bids will be summarily rejected.

B) Cancellation of Tender:

Notwithstanding anything specified in this tender document, the IISc purchase committee, in its sole discretion, unconditionally and without having to assign any reason, reserves the rights:

a. To accept OR reject the lowest tender, any other tender, or all the tenders.
b. To accept any tender in whole or in part.
c. To reject the tender, offer not confirming the tender terms.

C) Validity of the Offer:

The offer shall be valid 30 Days from the commercial bid's opening date.

D) Evaluation of Offer:

1. The technical bid (Part A) will be opened first and evaluated.

2. Bidders meeting the required eligibility criteria in Section 2 of this document shall only be considered for Commercial Bid (Part B) opening. Further, agencies not furnishing the documentary evidence as required will not be considered.

3. Prequalification of the bidders shall not imply final acceptance of the Commercial Bid. The agency may be rejected at any point during technical

evaluation or commercial evaluation. The decision regarding acceptance and/or rejection of any offer in part or full shall be the sole discretion of IISc Bangalore, and the decision in this regard shall be binding on the bidders.

4. The contract award will be subject to acceptance of the terms and conditions stated in this tender.

5. Any offer which deviates from the vital conditions (as illustrated below) of the tender is liable to be rejected:

    a. Non-submission of complete offers.
    b. Receipt of bids after the due date and time or by email/fax (unless specified otherwise).
    c. Receipt of bids in open conditions.

6. In case any BIDDER is silent on any clauses mentioned in these tender documents, IISc Bangalore shall construe that the BIDDER has accepted the clauses as of the tender, and no further claim will be entertained.

7. No revision of the terms and conditions quoted in the offer will be entertained after the last date and time fixed for receipt of tenders.

8. The lowest bid will be calculated based on the total price of all items tendered for the basic equipment, accessories selected for installation, operation, preprocessing and post-processing, optional items, recommended spares, warranty, and annual maintenance contract. The purchase committee seeks the most cost-effective solution for obtaining a new tool. Vendors are encouraged to propose all avenues, including but not limited to buy back of the existing tool, turnkey upgrade of existing to, l or purchase of a new tool.

E) Pre-requisites:

The bidder will provide the pre-requisite installation requirement of the equipment along with the technical bid.

F) Warranty:

The complete system has to be under warranty for a **minimum period of 3 years** (year-wise breakup value should be shown in the commercial bid). The vendor should include the cost of any spares needed during the warranty period, including electronics, subcomponents, and software. If the instrument is defective, it has to be replaced or rectified at the bidder's cost within 30 days from receipt of written communications from IISc, Bangalore. If there is any delay in replacement or rectification, the warranty period should be extended.

G) Annual Maintenance Contract:

An annual maintenance contract for at least three years post-warranty may be provided as an essential, optional item upon completion of the warranty period.

H) SPARES:

Vendors must provide a detailed list of spares and a user manual with a detailed Bill of Materials for all Parts. It should include the Spares Column with the Manufacturer part Number, Qty, and availability of stock after 3 Years.

I) Purchase Order:

The quantity of the items in the tender is only indicative. IISc, Bangalore reserves the right to increase /decrease the quantity of the items depending on the requirement.

If the product and service quality is unsatisfactory, IISc, Bangalore reserves the right to cancel or amend the contract.

J) Delivery, Installation, and Training:

The bidder shall provide the lead time to delivery, installation, and made functional at IISc, Bangalore, from the date of receipt of the purchase order. The system should be delivered, installed, and functional within 120 days of receipt of the purchase order. The supply of the items will be considered as effected only on satisfactory installation and inspection of the system and the inspection of all the items and features/capabilities tested by the IISc, Bangalore. **For acceptance, the vendor must demonstrate the technical specifications mentioned in the tender**. After successful installation and inspection, the date of taking over the entire system by the IISc, Bangalore, shall be taken as the start of the warranty period. **No partial shipment is allowed.**

K) Payment Terms:

Full payment (except AMC) will be released after completion of delivery, satisfactory installation, and qualification, subject to TDS as per rules. Advance payment is acceptable based on mutually agreeable terms. As per GFR, no advance payment can be made to domestic vendors unless an equal amount of bank guarantee is provided.

L) Statutory Variation:

Any statutory increase in the taxes and duties subsequent to the bidder's offer, if it takes place within the original contractual delivery date, will be borne by IISc, Bangalore, subject to the claim supported by documentary evidence. However, if any decrease occurs, the advantage will have to be passed on to IISc, Bangalore.

M) Disputes and Jurisdiction:

Any legal disputes arising from any breach of contract pertaining to this tender shall be settled in the court of competent jurisdiction in Bangalore, India.

N) General:

1. All amendments, time extensions, clarifications, etc., within the tender's submission period, will be communicated electronically. No extension of the bid due date/time shall be considered due to a delay in receipt of any document(s) by mail.

2. The bidder may furnish any additional information necessary to establish capabilities to complete the envisaged work successfully. It is, however, advised not to furnish superfluous information.

3. With prior intimation, the bidder may visit the installation site before tender submission.

4. Any information furnished by the bidder found to be incorrect, immediately or later, would render the bidder liable to be debarred from tendering/taking up work in IISc, Bangalore.

Section 4 – Technical Specifications

A. Confocal Microscope

1. Experimental capabilities

The system must support a wide range of advanced experiments-

- Time correlated Single Photon Counting (TCSPC)
- Antibunching measurements - Hanbury-Brown-Twiss (HBT)
- Hong-Ou-Mandel (HOM) interference experiments

2. Excitation System

The laser system must include diode laser at the following wavelength-

- 632 +- 10 nm: pulsed, cw, with > 20 mW power in pulsed mode at maximum repetition rate

The laser driver module-

- The laser driver must support up to 8 laser heads
- Freely adjustable repetition rates (from single shot to 80 MHz). Preferably higher repetition rates (100 MHz or greater).
- The laser driver also should support pulsed/burst/cw modes, an external trigger input and synchronization output.

All lasers must be housed in a compact module with up to 5 excitation lasers coupled into a single polarization-maintaining optical fibre to ensure optimal spatial overlap. Light attenuation that conserves pulse form should be controlled via manual beam waist reduction and neutral density (ND) filters on a filter wheel.

An additional LCU fibre entry port must be available to connect a laser (pulsed super continuum laser) provided by the customer via FC/APC fibre coupling. This port will be compatible with an external tunable laser.

Also, additional entry port to couple to external detectors/cameras (eg. CCD) needs to be provided.

3. Optical Filters and Mirrors

Each laser should be paired with a suitable detection filter and main dichroic mirror. The filter system must include PIE-compatible dichroic and filters for multi-laser operation.

4. Microscope Systems and Objectives

- The system must include a high-quality, research-grade, motorized inverted microscope with transmission illumination, a condenser and a power supply.
- A binocular with two eyepieces with crosshair or a camera-based system which one is suitable is required.
- The system must be equipped with 20x and 40x standard objectives and a high numerical aperture (NA) 100x oil immersion objective.
- The microscope should include a scanner that is optically aberration-free with 100% transmission specification, for maximum single molecule performance.
- The microscope should be capable of 3D scanning over a minimum range of 80 µm × 80 µm × 80 µm in xyz with a position accuracy of 1 nm in xy.

5. Detection system

The detection module must be modular and open, allowing the insertion of custom optics. Main Optical Unit (MOU) should have free access to optics and space for inserting custom optics.

It should include a secondary MOU excitation port coupled via fiber to enable HOM-specific timing configurations.

The standard sized optical filters should be easily exchangeable and freely configurable-

- for maximum performance

- for best possible match to individual experimental parameters

The detection path should be optimized for maximum sensitivity, enabling best performance for single molecule studies.

All detectors are operated in free space configuration.

Two Single Photon Counting Modules (SPAD) must be included, each with a detection range from 400 nm to 1000 nm and >70% detection efficiency at 700 nm.

A single confocal pinhole must be shared across detectors for signal routing.

6. Electronics and System Software

The system must include electronics capable of counting 4 independent detector channels simultaneously with < 1 ns dead time per TCSPC channel, sustained count rates >80 million counts per second in a single TCSPC channel, and timing resolution <5 ps.

The software must support full acquisition and analysis workflows, including Time-resolved point measurements, Global fitting of TCSPC decays, Confocal FLIM, Total correlation measurements/antibunching, decay diversity map + pattern matching for fit free FLIM and lifetime analysis.

7. Hong Ou Mandel (HOM) Interferometer Customization

Technical Requirements and Specifications-
The proposed system should include the following components and meet the specifications below:

a. Detection System

- Beam splitter 1 (50/50) with better than 42:58 splitting ratio for 600–700 nm wavelength range to split the light into two arms of the interferometer.
- Two fiber launch systems (one for each arm).
- One arm with translation stage for time delay.
- Two optical fibers of different lengths for 2 ns fixed timing compensation.
- 2×2 fiber coupler (beam splitter 2; 50/50; better than 42:58 for 600–700 nm wavelength range).
- Fiber-coupled detection system with SPADs.

b. Excitation System

- Original exit port from Laser Coupling Unit (LCU) producing one pulse per cycle.
- Second exit port for the LCU with fiber-coupled delay line producing two pulses with a fixed time delay of 2ns.
- Movable mirror for switching output between LCU ports.

c. Timing Control

- Maximum optical delay > 30 ps
- Minimum delay shift < 50 fs steps via translation stage
- Delay accuracy < 50 fs
- Bidirectional repeatability < 15 fs

d. Space Requirements

- Exact footprint to be confirmed after design.

e. Cryostat Compatibility

- The system must be compatible with external closed-loop cryostat systems.
- Optical interface: Collimated excitation output beam
- Electronic interface: Electronic compatibility of the signals from the controller should be ensured

Important Note:

1.Total system transmission efficiency should be around 80%.
2. The optical fibers should be Single-Mode fiber.
3. The optical fibers should also be Polarization-Maintaining fibers.

8. Acceptance Criteria

For the microscope system:

- Standard acceptance tests will include verification of detector dark counts and instrument response function (IRF).
- Antibunching will be demonstrated using a standard fluorescent sample.

For the HOM system:

- Both Beam Splitter 1 and Beam Splitter 2 must have a splitting ratio better than 42/58 at a wavelength range of 600-700nm.
- Fringe visibility (FV) must exceed 78%, tested at the factory using a standard interference protocol: a laser beam is split, recombined, and detected at one port while the delay line is adjusted to maximize overlap, defined by

$$FV = (I_{max} - I_{min}) / (I_{max} + I_{min})$$

B. Cryostat and nanopositioner

- The vacuum shroud and radiation shield should allow optical measurement for both reflection and transmission experiments.
- One optical window on top and at least four on sides. The vacuum shroud should have at- least two optical windows made of fused silica or similar non-birefringent material. Type of window: Transmission should be more than 85% for wavelength range 0.2 to 1.5 microns. Window diameter should be 35 mm or more.
- Sample space at least 75 mm in diameter.
- The cryostat should have a cryo-objective, i.e. an objective mounted inside the cryostat, with numerical aperture >= 0.65, working distance <= 3 mm, and necessary radiation shields and mounting hardware. The objective should have a minimum temperature

drift with the sample.

- The cryostat should have two or more FC-PC fiber feedthroughs. One of the fibers should be flexible to be mounted close to the sample plane.

- The stage offers a travel range of 5 × 5 × 5 mm in all directions. It provides a minimum increment of < 1 μm (at 4K) in closed-loop mode, with a sensor resolution of < 100 nm. The repeatability is better than 9-10 μm. The stage supports a maximum velocity of 1 mm/s. Overall dimensions may not exceed 34 × 30 × 34 mm.

- Necessary mounting hardware (adapters, spacer plates) for three-axis (XYZ) nano-positioner, and a suitable temperature sensor should be included.

- Base temperature at sample less than 4.5 K for more than 80 hours.

- Necessary hardware for extended temperature controls up-to at least 320 K. Preferably a right-angle bracket to be also included for alternative sample orientation.

- Cool down time to less than 5K < 4.5 hours for operation.

- Temperature stability should be better than 20mK/hour at sample.

- Appropriate temperature controller with at least one PID channel (and through integrated software), or through external temperature controller. Appropriate heater is mounted on sample stage for temperature control.

- Calibrated temperature sensors at cold head and sample stage positions.

- Vibration levels in all directions < 20 nm peak to peak. If performance cannot be shown at the time of installation, the vendor should provide factory test reports for the supplied system. Test data for the system should be provided before shipment of the system.
- Drift stability < 50 nm/hour peak to peak continuously for several days.
- The system should have at least 25 DC electrical pins and 4 RF pins (rated at ~ 15 GHz) for user experiments. These pins should have (resistive) wires which are thermally lagged at platform stage (1st stage/30K stage).

- 16-channel DC mount, including PCB with 16 DC wire bond pads. PCB should be reusable and replaceable.

- Appropriate manifold dry vacuum pumping system (no oil-based pumps).
- Appropriate amount of Helium-4 gas for the system. Appropriate air- or water-cooled helium compressor with full charge of high purity Helium gas, with appropriate flexible lines/hoses. The hose lines should be equal to or longer than 10 meters. Electrical and cooling water requirements for the compressor must be specified, and the air/water chiller should be included in the quote.
- Maintenance interval for the compressor must be at-least 30,000 hours and for the cold head must be at-least 20,000 hours
- The system should be compatible with an optical table. All necessary accessories should be provided.
- Appropriate computer software for controlling the cryostat. Related accessories such as connectors, adapters, cables etc. are necessary for independent operation of the system at 220V, 50Hz, single phase.
- Three-year warranty.
- Base sample temperature should be demonstrated at the time of installation.
- The vendor should have a track record of having previously supplied similar equipment in India (please furnish the details).

NOTE

1. **Part A** and **Part B** should be mutually compatible and tested prior to delivery and installation at the manufacturer location. Data to be provided for integrated operations of parts A and B.
2. Sample positioning within the cryostat to be better than 10 nm accuracy.
3. Quote additional items (ex. Cryo scanner, vacuum pump, optical table etc.) relevant to the proposed configurations.

Important Note:

- Please note that bidders may submit quotes for both Part A and Part B, or for either Part A or Part B individually.
- Kindly ensure that the prices for Part A and Part B are clearly stated and specified separately in the quotation.

Section 5- Technical Bid

The technical bid should furnish all requirements of the tender along with all annexures in this section and be submitted to:

The Chairperson,
Attn: Prof. Shankar Kumar Selvaraja
First floor, Centre for Nano Science and Engineering,
Indian Institute of Science,
CV Raman Ave. Bangalore – 560012, India.

Annexures

Annexure 1:

Details of the Bidder

The bidder must provide the following mandatory information & attach supporting documents wherever mentioned:

Details of the Bidder

Sl. No	Items	Details
1.	Name of the Bidder	
2.	Nature of Bidder (Attach an attested copy of the Certificate of Incorporation/ Partnership Deed)	
3.	Registration No/Trade License (attach attested copy)	
4.	Registered Office Address	
5.	Address for communication	
6.	Contact Person: Name and Designation	
7.	Telephone No	
8.	Email ID	
9.	Website	
10.	PAN No. (attach copy)	
11.	GST No. (attach copy)	

Signature of the Bidder

Name
Designation, Seal Date:

Annexure 2:

Declaration regarding experience

To,
The Chairperson,
Attn: Prof. Shankar Kumar Selvaraja
Centre for Nano Science and Engineering,
Indian Institute of Science,
CV Raman Ave. Bangalore – 560012, India.

Ref: Tender No: XXXXXXXXX Dated: XXXXX

Dear Sir/Madam

I have carefully reviewed the Terms & Conditions in the above-referred tender. I hereby declare that my company/firm has years of experience in supplying and installing the proposed equipment.

(Signature of the Bidder)
Printed Name
Designation,
Seal
Date:

Annexure 3:

Declaration regarding track record To,

The Chairperson,
Attn: Prof. Shankar Kumar Selvaraja
Centre for Nano Science and Engineering,
Indian Institute of Science,
CV Raman Ave. Bangalore – 560012, India.

Ref: Tender No: XXXXXXX
Dated: XXXXX

Dear Sir/Madam,

I have carefully reviewed the Terms & Conditions in the above-referred tender. I hereby declare that my company/ firm is not currently debarred/blacklisted by any Government / Semi-Government organizations/institutions in India or abroad. I further certify that I am a competent officer in my company/firm to make this declaration.

Or

I declare the following

Sl.No	Country in which the company is Debarred /blacklisted / case is Pending	Blacklisted/debarred by Government / Semi-Government/Organizations /Institutions	Reason	Since when and for how long

(NOTE: In case the company/firm was blacklisted previously, please provide the details regarding the period for which the company/firm was blacklisted and the reason/s for the same).

Yours faithfully (Signature of the Bidder)

Name
Designation,
Seal

Date:

Annexure 4:

Declaration for acceptance of terms and conditions

To,
The Chairperson,
Attn: Prof. Shankar Kumar Selvaraja
Centre for Nano Science and Engineering,
Indian Institute of Science,
CV Raman Ave. Bangalore – 560012, India.

Ref: Tender No: XXXXXX

Dated: XXXX

Dear Sir/Madam,

I have carefully reviewed the Terms & Conditions mentioned in the above-referred tender document. I declare that all the provisions of this tender document are acceptable to my company. I further certify that I am an authorized signatory of my company and am, therefore, competent to make this declaration.

Yours faithfully,

(Signature of the
Bidder) Name
Designation, Seal Date:

Annexure 5:

Details of items quoted:

a. Company Name
b. Product Name
c. Part/Catalogue number
d. Product description/main features
e. Detailed technical specifications
f. Remarks

Instructions to bidders:

1. Bidder should provide technical specifications of the quoted product/s in detail.
2. Bidder should attach product brochures along with the technical bid.
3. Bidders should clearly indicate compliance or non-compliance with the technical specifications provided in the tender document.

Section 6 – Commercial Bid

The commercial bid should be furnished with all requirements of the tender with supporting documents as mentioned:

Addressed to

The Chairperson,
Attn: Prof. Shankar Kumar Selvaraja
Centre for Nano Science and Engineering,
Indian Institute of Science,
CV Raman Ave. Bangalore – 560012, India.

Section 7 – Checklist

(This should be enclosed with a technical bid- Part A)
The following items must be checked before the Bid is submitted:

1. Sealed Envelope "A": Technical Bid

1. **Section 5- Technical Bid (each page signed by the authorized signatory and sealed) with the below annexures:**
    a. **Annexure 1: Bidders details**
    b. **Annexure 2: Declaration regarding experience**
    c. **Annexure 3: Declaration regarding clean track record**
    d. **Annexure 4: Declaration for acceptance of terms and conditions**
    e. **Annexure 5: Details of items quoted**
2. **Copy of this tender document duly signed by the authorized signatory on every page and sealed.**

2. Sealed Envelope "B": Commercial Bid

Section 6: Commercial Bid

Your quotation must be submitted in two envelopes: **Technical Bid (Envelope A) and Commercial Bid (Envelope B),** superscribing on both the envelopes with, Tender description, Tender No. and due date and both of these in sealed covers and put in a bigger cover which should also be sealed and duly super scribed with Tender No., Tender description & Due Date.