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Inventing Harmonious Future

TCG CENTRES FOR RESEARCH AND EDUCATION IN SCIENCE AND TECHNOLOGY
1st Floor, Tower 1, Bengal Eco Intelligent Park (Techna Building),
Block EM, Plot No 3, Sector V, Salt Lake, Kolkata 700091
Website: https://www.tcgcrest.org

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Notice for purchasing of Nanodiamond Sensor Imaging System

TCG CREST, Kolkata intends to purchase certain items for its Center for Quantum Engineering, Research and Education (CQuERE) related to the project under National Quantum Mission, by the Department of Science & Technology (DST), Govt of India. Prospective Agencies are requested to submit their lowest possible quotation in a SEALED ENVELOP with "Nanodiamond Sensor Imaging System" label and DATE duly super scribed on the COVER and on the face of the offer letter addressed to "1st Floor, Tower 1, Bengal Eco Intelligent Park (Techna Building), Block EM, Plot No 3, Sector V, Salt Lake, Kolkata 700091" for the supply of the under mentioned items. Last date for submission of quotation is: 08/09/2025 (by 11:00 am). In addition, I separate email with the quotation should be sent to: sarbajit.chatterjee@tcgcrest.org

Following specifications are required:

A. Inverted Fluorescence Microscope

1. Inverted double deck water/spill proof fluorescence microscope frame with left side port and provision for attaching fluorescence illuminator/ reflected light source and right-side port
2. Integrated 3 positions light path prism (100:0/50:50/0:100). Provision for upgrading with motorized/coded components like external Z motor and motorized fluorescence mirror turret.
3. Focus limit adjusting coarse and fine tension adjustment Knobs.
4. Sextuple manual nosepiece to accommodate up to 6 objectives.
5. Binocular Eyepiece Tube with one side built-in dioptre adjustment.
6. Two 10X eyepieces with 22mm F.O.V.
7. Transmitted illumination pillar with 30 degrees inclination angle & vibration reducing mechanism for inverted microscope having front operation knobs for reproducible condenser focus position adjustment, compatible with both LED and Halogen light sources.
8. LED Lamp house and power supply unit for the microscope.
9. 45 mm frosted filter & Interference light balance daylight filter with 45mm diameter.
10. Mechanical stage with fixed right-side handle. XY travelling range -114 mm X 70 mm for imaging with glass slides, 35mm dishes as well as multi-well plate. Circular universal sample holder stage inserts with dedicated Sample holder for slide glass, 35mm dishes, multi-well plate. Stage stopper function should be implemented for time-lapse or other applications.
11. 5 positions Long Working Distance Universal Condenser with 0.55 NA
12. Universal plan fluorite objective 10X/NA 0.3, WD 10
13. Universal plan fluorite objective 60X/NA 0.9, WD 0.2 with correction collar (spring, c.c. 0.11-0.23)
14. Extended Plan Super Apochromatic 60X oil immersion Objective N.A.1.42, W.D.0.15 (spring loaded), chromatically corrected from 400-1000nm.

15. The microscope should be supplied with eight position or better fluorescence filter-cube turret (Possibility to be configured with coded functions if required).
16. One C-Mount adapter should be provided with the microscope
17. 30cc fluorescence grade immersion oil and Dust Cover for the microscope should be supplied.

B. Laser Scanning Confocal Scanner Module

i) The confocal scanning mirror module should include:

1. A fully motorized confocal pinhole featuring variable aperture selection from 20µm up to 1 mm
2. A computer-controlled 4-position dichroic mirror wheel for holding up to 4 dichroic (25-mm diameter round, up to 3-mm thickness) to separate the fluorescence light from the excitation
3. Two computer-controlled shutters
4. De-scanning lens assembly with the manual XY micro-adjustments
5. Focusing lens assembly with the manual XYZ micro adjustments.
6. The 5 mm mirrors should cover the range of 250-450 nm (UV-enhanced Al coating) or 375-800 nm range (broadband dielectric coating) with a linearity of minimum 99.9% over 40° & repeatability of 8 µrad, small scale bandwidth: 3 KHz. It should be complete of driving electronics and power supply.
7. Software for the motor control should be included.

ii) Data Acquisition card

1. 3-X DAC control card for confocal microscopy with separate feature control of three channels (± 12V), with 16-bit DAC, 10 MHz synchronization clock input. The stand-alone unit should be controlled through the USB port.

iii) Piezo Stage for fast scanning

Piezo-stage insert (ZL400) that should fit microscope stage with up to 160x110 mm for positioning of the sample along the Z-direction of up to 400 µm. Compatible for slides, petri dishes and microwell plates, sample holder with adjustable sample/media holder (35mm petri, 60mm petri, 75mm slides, 50mm cover glass sample holders for slides, coverslips and petri dishes. It should have 3-axis card control.

IV) Excitation Laser:

1. Laser launcher unit for three (3) laser diodes. Each laser should be controlled independently, there should an attenuator for regulation of the laser intensity and a shutter, mounted in front of each laser. The lasers beams should be superimposed using dichroic and focused onto a single mode. It should have a polarization-maintained fiber

for simultaneous delivery of the light to the microscope. A separate fiber port should be available for lasers emitting > 700nm.

2. It should have a UV-VIS lasers (375 – 700 nm) fiber delivery system, maintaining single mode polarization. It should have a comprehensive of collimator and fiber port.

3. A pulsed 532nm laser, 50mW, 10ps, frequency: 20-80MHz

V) Confocal Detectors:

The confocal detection module should include:
1. Two (2) Peltier cooled, low noise SPAD detectors
2. Fibre ports and XZ alignment controls should be offered featuring 100% light tight and kinematic design for reliable positioning of the dichroic cube, allowing easy change of the optics; it should be ready to use with suitable imaging light path.
3. Two (2) quantities of dichroic cubes, one loaded with the 50/50 beam splitter and the other loaded with an appropriate dichroic for 520nm & 532 nm excitation laser.
4. Three 3 filter holders and 2 emission filters for 580nm and 640 nm respectively.

C. Imaging software module

Main Software: It should include Imaging, FLIM/PLIM and FFS/smFRET modules for intensity image, FLIM and FFS/smFRET data acquisition, processing, display and analysis. Raw data acquisition capabilities and processing (images and plots), data exporting to various file formats including TXT, TIFF, JPEG, PNG, BMP, AVI, etc. (Windows 10/11 64-bit or 32-bit)

Imaging and FLIM/PLIM module: It should support - multi-dimensional data contents such as single spot, line (1D), image (2D), Z stack (3D), time lapse (t), spectrum (λ), and stage positions. It should provide image processing utilities such as smoothing, filtering, thresholding and false colouring for image contrast enhancement, as well as advanced mathematical operations; FLIM analysis should be carried out using the fitting algorithm (up to 5 exponential components) and the phasor plot utilities.

FFS Module: It should support photon counts, Time Tagged and Time Tagged Time Resolved (TTTR) modes for FFS data acquisition; cross-correlation measurements and time-gating analysis by the pulsed interleave excitation wavelengths; separation of different diffusion species by analysing and processing their fluorescence lifetimes (FLCS – fluorescence lifetime correlation spectroscopy). It should have all the models (more than 50) for FCS, FCCS and PCH fitting analysis and custom model functions for the user input and fitting options provided by the software. Multiple files should be analysed using global analysis.

smFRET Module: It should offer specific design for the smFRET bursts measurements to count single molecule events over a long period of time and determine FRET efficiency (distance) vs. labelling stoichiometry.

Antibunching Module: It should support photon antibunching measurements for both solution and immobile samples using the Hanbury Brown and Twiss setup; offering the on-line calculation and display of the 2nd order correlation during the data acquisition and the post fitting routines.

Warranty: 1 Year

TERMS & CONDITIONS

1. Quotation should be for FREE DELIVERY at TCG CREST, Kolkata or quoted on FOR destination basis, unless otherwise arranged.
2. Prices quoted should be Net and minimum period of validity of the quotation SHOULD BE FOR 120 DAYS from the closing date. The prices quoted by the bidder shall be fixed for the duration of the contract and shall not be subject to adjustment on any account.
All duties and other levies payable by the supplier under the contract shall be included in the unit Price. Applicable taxes shall be quoted separately for all items. TCG CREST, Kolkata may or may not provide DSIR certificate wherever GST exemption will be applicable.
3. Quotations cannot be CORRECTED after submission.
4. Any Quotationer already having any legal dispute with the institution need not submit the tender.
5. Manufacturer's NAME and the COUNTRY OF ORIGIN of the materials offered must be clearly specified failing which the Tender will not be considered.
6. All the documents should be authenticated with official stamp and signature / signatures thereon by the bidder.
8. The tenderers will not be titled to ask for any further information other than whether their tenders have been received or not.
9. Submission of false document(s) / information by the bidder will result into the cancellation of quotation and the Institute may take strict action against that bidder.
10. If the institution finds that the materials supplied are not of the contract quality or not according to the specification approved by the University or otherwise not satisfactory owing to any reason, of which the institution shall be the sole judge, the institution shall be entitled to refuse the acceptance of the said materials, cancel the order and buy its requirement elsewhere at supplier's responsibility.
11. Quotationers must as far as possible, arrange to supply the materials according to the terms of delivery specified in the orders. If however, this is not possible, they shall clearly specify the time in which the delivery of the articles can be effected. This delivery time must be strictly adhered to. Failure to supply within the specified time will lead to cancellation of the order without notice.
12. Being the lowest bidder (L1) in term of quoted amount (incl. all) may not be the only condition to receive the order, other criteria like having PAN, GSTIN, location of the office, and equipment/software's technical merit and advantage for the ongoing research work etc.

may also be considered during the selection of the eligible bidder. The decision of the institution in such a case will be the final. For authenticity/genuineness of the quoted product, the firm should be a reputable, well established and suppliers of the goods or services as part of their normal business.

13. In case the selected bidder is unable to supply the items after being selected to supply the items or after receiving the respective order from the institution, the bidder should immediately inform the Authority about the same by e-mail. Decision of the institution in such case will be the final.

14. If any tenderer proposes to charge GST & Delivery charges, in addition to his quoted rates this fact should be stated specifically in his quotation. In the absence of such statement the rate quoted will be deemed to be inclusive of GST & Delivery charges.

15. Payment will be made on the basis of LC.

16. Non-Compliance of an order may lead to cancellation of enlistment and no enquiry will be issued in future.

Up to 10% of bill value may be deducted for default on delivery.

17. Deduction of all taxes as per norms for each Bill/Invoice shall be made by the Authority at the time of payment.

18. Any dispute which may arise between the bidder and the institution regarding this bidding shall be referred to the Director, TCG CREST, Kolkata, whose decision shall be final and binding in this regard.

19. PAN, GSTIN and Bank details of the bidder are to be mentioned in the bill/ invoice.

20. Dealership Certificate: The bidder/tenderer should be either a manufacturer or authorized dealer of the foreign/Indian manufacturer. Dealers or Agents quoting on behalf of Manufacturer must enclose valid dealership certificate. If the quotation is being submitted by dealer, the after sales service will be responsibility of that dealer only. TCG CREST, Kolkata will not directly coordinate with the manufacturers.

21. The institution reserves the right to accept or reject any quotation without showing any reason.