Pl.A1/13241/2020/1 **04.02.2021**

Department of Optoelectronics, University of Kerala, Kariavattom, Thiruvananthapuram, Kerala, India – 695581, Ph: 91 471 2308167

E-Tender Notice

Department of Optoelectronics, University of Kerala, Kariavattom, invites tenders for the purchase of **various equipment's in connection with the implementation of the specific project 'Pulsed Photoacoustic study in Nanobionics'** having following specifications.

Last date and time for submission of tender online	: 05.03.2021 05.00 PM
Date and time of opening of tender	: After Technical Evaluation
For technical details contact	**Head, Department of Optoelectronics, University of Kerala, Thiruvananthapuram** **Ph. No. +91 4712308167** e-mail: optoelectronics@keralauniversity.ac.in

<u>Tender 1.</u> Q SWITCHED PULSED ND-YAG LASER SYSTEM (with all sub items 1 to 5)

<u>ITEM - Q SWITCHED PULSED ND-YAG LASER SYSTEM</u>

- With second (532 nm) and third harmonic (355 nm)generator
- Output energy
  - 1064 nm – 1500 mJ or above
  - 532 nm – 800 mJ or above
  - 355 nm - 300 mJ or above
- Pulse repetition rate – 10Hz
- Pulse width – 10ns
- Beam diameter – 9.5mm
- Pointing stability – 50µrad
- Pulse length: 10-15 mrad @ 1064nm
- Beam divergence - <0.5mrad
- Timing jitter: <0.5ns
- Birefringence compensating twin rod oscillator amplifierdesign
- Separation optics for the harmonicgenerators.
- Motorized optical attenuator for 1064nm
- Beam dump shutter for 1064nm.
- Water chiller for the lasersystem
- Mirrors and lenses with mount suitable for the three wavelength (1064 nm, 532 nm and 355 nm).
- The system must be software controlled for the selection of different laserparameters.
- Voltage: 220-250VAC
- Frequency: 50Hz

Accessories to be supplied along with the Q switched pulsed Nd-YAG laser system

1. **405 nm variable power continuous wave diodelaser**
   - Wavelength – 405nm
   - Adjustable power up to 100mW
   - Spatial mode –TEM_{00}
   - M^2 - ≤1.2
   - Beam diameter at the aperture ($1/e^2$,mm) - <1mm
   - Beam divergence - <1 mrad, fullangle
   - RMS Noise - ≤0.05%
   - Peak to peak noise-<0.5%
   - With power supply(230V/50Hz)
   - With cooling system ifrequired
   - Linearlypolarized
   - Options for analog and digitalmodulation
   - Warranty – 1 year
2. **532 nm variable power continuous wave diodelaser**
   - Wavelength – 532nm
   - Adjustable power up to 150mW

- Spatial mode –TEM_{00}
- M^2 - ≤1.1
- Beam diameter at the aperture ($1/e^2$,mm) - <1mm
- Beam divergence - <1.2 mrad, fullangle
- RMS Noise - ≤0.25%
- Peak to peak noise-<1%
- With power supply(230V/50Hz)
- With cooling system ifrequired
- Linearlypolarized
- Options for analog and digitalmodulation
- Warranty – 1 year

3. **640 nm variable power continuous wave diodelaser**
    - Wavelength – 640nm
    - Adjustable power up to 100mW
    - Spatial mode –TEM_{00}
    - M^2 - ≤1.2
    - Beam diameter at the aperture ($1/e^2$,mm) - <1mm
    - Beam divergence - <1.3 mrad, fullangle
    - RMS Noise - ≤0.05%
    - Peak to peak noise-<0.5%
    - With power supply(230V/50Hz)
    - With cooling system ifrequired
    - Linearlypolarized
    - Options for analog and digitalmodulation
    - Warranty – 1 year
4. **Laser SafetySpectacles**
    - 180 nm to 534 nm – OD7+
    - 720 nm to 730 nm – OD5+
    - >730 nm to 740 nm – OD6+
    - >740 nm to 1070 nm – OD7+
    - Modern universal style(Medium)
    - Adjustabletemples
    - Soft touch nylonframe
    - Full field ofview
    - CE–Certified
    - Number of Units required -5
5. **Laser Power and EnergyMeter**
    - Measurable Range: 1 nJ – 300J
    - Measurement resolution: 0.1% of reading
    - Power Sampling rate: 10Hz
    - Accuracy Digital Meter: ±1 % ofreading
    - Computer Interface:USB1.1
    - Operating Temperature: 5 – 40°C

Energy sensor

- Energyrange : 1.5 mJto3J

- Activeareadiameter : 50mm
- Wavelength : 0.266 to2.1µm
- MaxAveragePower :20W
- MaxBeamSize :35mm
- MaxPulseWidth : 340µs
- MaxRep.Rate :50pps
- Maxenergydensity : 14J/cm^2 (@1064 nm, 10ns)

Power sensor

- Powerrange : 100 µW to 1W
- Activeareadiameter : 10mm
- Wavelength : 0.19 to 11 µm (0.19-0.3, max power < 100mW)
- Max.IntermittentPower : 3 W(<5 min.)(W)
- Maximum Avg.PowerDensity : 0.5kW/cm2
- Max Pulseenergydensity v: 50 mJ/cm2 (10 ns, 1064nm)

General Conditions:

1. Every tenderer should submit Tender fee of **Rs. 2,500/-**
2. Every tenderer should submit an Earnest Money Deposit (EMD) of **Rs. 70,000/-**
3. The tender shall be submitted in the **two bid**viz. Technical Bid and Financial Bid. Only those qualified in technical bid will be eligible for participating in financial bid. A presentation regarding the technical specification and item to be supplied shall be done before the technical evaluation committee ifrequested.
4. The bidder should be a manufacturer or their dealer specifically authorized by the manufacturer to quote on their behalf for this tender as per Manufacturer Authorization from and Indian agents of foreign principals, if any, who must have designed, manufactured, tested and supplied the equipment(s) similar to the type specified in the "Technical Specification". Such equipment mustbe of the most recent series/models incorporating the latest improvements in design. The models should be in successful operation for at least one year as on date of BidOpening.
5. **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. **Vendors should provide clear brochures/data sheets about the equipment and its working. Also include adequate proof for the claim regarding the performance.**
6. **Reference:** Names of Institutes with contact person and telephone/ email where similar equipment supplied by you in India shall be mentioned in thebid.
7. Incomplete & conditional tenders and tenders received after the due date will be summarily rejected without assigning any reasonsthereof.
8. The price should be inclusive of all taxes, duties, transportation, insurance, installation etc. Nothing extra will be paid in addition to the quoted rate. Any amount in Indian rupees for installation, commission, labour, spares, service etc shall be entered in item 2 ofBoQ.
9. Payment Terms: 90% payment shall be made through irrevocable LC on presentation of complete and clear shipping documents and balance 10% of the amount shall be released after the receipt, installation commissioning and acceptance of the equipment **in case of foreignconsignment.**
10. Validity of tender: Tender submitted shall remain valid at least for 120 days from the date of opening the tender. Validity beyond 120 days, from the date of opening of the tender shall be by mutualconsent.
11. Delivery and installation: Proposed delivery schedule should be mentioned clearly. The item should be installed at the Department of Optoelectronics, University of Kerala, Kariavattom campus, Trivandrum without any extra cost (inclusive of documentation, demurrage, customs duty, clearance and transportation charges). Training should be made at the Department of

Optoelectronics, University of Kerala, Kariavattom campus, Trivandrum. University of Kerala will provide customs duty exemption certificates if required.

12. Service facility: Supplier should mention their details of service setup and manpower in Thiruvananthapuram who are responsible for after salessupport.
13. The model number, make, and a printed literature of the product shall submitpositively.
14. In case of any dispute, the decision of the University authority shall be final and binding on the bidders.
15. The undersigned reserves the right to reject any or all of the tenders received without assigning any reasonthereof.
16. The quoted item should be under **comprehensive warranty for minimum 3years**.
17. If any component is found to be defective during the warranty period, the vendor has to replace the defective item immediately at their owncost.

Documents to be Uploaded

1. Signed ComplianceMatrix
2. Detailed TechnicalBrochure
3. BoQ
4. Tender fee