

	<b>INDIAN INSTITUTE OF TECHNOLOGY MADRAS</b> <b>Chennai 600 036</b>  Telephone: (044) 2257 4899 E-mail: dks@iitm.ac.in	
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Dr. Dillip K. Satapathy  
Project Coordinator

Ref: PHY/2019/006/Stores  
Dated: 06.08.2019

Limited Tender No: PHY/2019/006/Stores

**Due Date: 27.08.2019, 3:00pm**

**Technical Bid opening meeting on Due Date: 27.08.2019, 4:00pm**

Dear Sir/Madam,

On behalf of the Indian Institute of Technology Madras, offers are invited for the supply of ***“Inverted Optical Research Microscope”*** conforming to the specifications given in **(Annexure-I)**:

**Instructions to the Bidder**

- I. **Preparation of Bids:** - The Limited tenders should be submitted under **two-bid system (i.e.) Technical bid and Financial bid.**
  
- II. **Delivery of the tender:** - The tender shall be sent to the below-mentioned addresses either by post or by courier so as to reach the following address before the due date and time specified in our Schedule:  
**Dr. Dillip K. Satapathy, (Principal Investigator)**  
**Department of Physics,**  
**IIT Madras, Chennai - 600036,**  
**Tamil Nadu, India.**
  
- III. **Opening of the tender:** - The offer/Bids will be opened by a committee duly constituted for this purpose. The technical bids will be opened first and it will be examined by a technical committee which will decide the suitability of the bid as per our specifications and requirements. The bidders will be invited for opening of Technical bids. In respect of opening of financial bid, those bidders who are technically qualified only will be called for.
  
- IV. **Prices:** - The price should be quoted in net per unit (after breakup) and must include all packing and delivery charges to **Department of Physics (Mechanical Sciences Block).**

The offer/bid should be exclusive of taxes and duties, which will be paid by the purchaser as applicable. However the percentage of tax & duties should be clearly indicated. The price should be quoted without custom duty and excise duty, since I.I.T. Madras is exempt from payment of excise duty, and the custom duty will be paid at concessional rate against duty exemption certificate. In case of import supply, the price should be quoted on EX-WORKS and CIP basis indicating the mode of shipment.

- V. **Agency Commission:** - Agency commission, if any, will be paid to the Indian agents in Rupees on receipt of the equipment and after satisfactory installation. Agency Commission will not be paid in foreign currency under any circumstances. The tenderer should indicate the percentage of agency commission to be paid to the Indian agent. The foreign Principal should indicate about the percentage of payment and it should be included in the originally quoted basic price, if any.
- VI. **Terms of Delivery:** - The item should be supplied to our Department as per Purchase Order. In case of import supply, the item should be delivered at the cost of the supplier to our Institution. The Installation/Commissioning should be completed as specified in our important conditions.
- VII. **Technical Bid Opening:** The technical bid will be opened on **27.08.2019, 4:00pm** at the Department of Physics (Mechanical Sciences Block), IIT Madras and the financial bids of those tenders who are technically qualified will be opened at a later date under intimation to them.
- VIII. IIT Madras reserves the full right to accept / reject any tender at stage without assigning any reason.

Yours sincerely,

**Dr. Dillip K. Satapathy, (Principal Investigator)**  
**Department of Physics,**  
**IIT Madras, Chennai - 600036,**  
**Tamil Nadu, India.**

## SCHEDULE

### **Important Conditions of the tender**

1. The due date for the submission of the tender is **27.08.2019, 3:00pm.**  
The offers / bids should be submitted in two bids systems (i.e.) Technical bid and financial bid. The Technical bid should consist of all technical details / specifications only. The Financial bid should indicate item-wise price for each item and it should contain all Commercial Terms and Conditions including Taxes, transportation, packing & forwarding, installation, guarantee, payment terms, pricing terms etc. The Technical bid and financial bid should be put in separate covers and sealed. Both the sealed covers should be put in a bigger cover. The Limited Tender for supply of "**Inverted Optical Research Microscope**" should be written on the left side of the Outer bigger cover and sealed.
2. **Indian Agent:** If an Indian agent is involved, the following documents must be enclosed:  
Foreign principal's proforma invoice indicating the commission payable to the Indian Agent and nature of after-sales service to be rendered by the Indian Agent.
  - ✓ Copy of the agency agreement with the foreign principal and the precise relationship between them and their mutual interest in the business.
3. The offer/bids should be sent only for a machine that is available in the market and supplied to a number of customers. A list of customers in India and abroad with details must accompany the quotations. Quotations for a prototype machine will not be accepted.
4. Original catalogue (not any photocopy) of the quoted model duly signed by the principals must accompany the quotation in the Technical bid. No prices should ever be included in the Technical bid.
5. Compliance or Confirmation report with reference to the specifications and other terms & conditions should also be obtained from the principal.
6. **Validity:** Validity of Quotation not less than 60 days from the due date of tender.
7. **Delivery Schedule:** - The tenderer should indicate clearly the time required for delivery of the item. In case there is any deviation in the delivery schedule, liquidated damages clause will be enforced or penalty for the delayed supply period will be levied.
8. **Risk Purchase Clause:** - In the event of failure of supply of the item/equipment within the stipulated delivery schedule, the purchaser has all the right to purchase the item/equipment from other sources on the total risk of the supplier under risk purchase clause.

9. **Payment:** -

- I. No Advance payment will be made for Indigenous purchase. However 90% Payment against Delivery and 10% after installation are agreed to wherever the installation is involved. In case of import supplies the payment will be made only through 100% Letter of Credit i.e. (90% payment will be released against shipping documents and 10% after successful installation wherever the installation is being done).
  - II. **Advance Payment:** - No advance payment is generally admissible. In case of specific percentage of advance payment is required, the Foreign Vendor has to submit a Bank Guarantee equal to the amount of advance payment and it should be routed through the Beneficiary Bank to the end user Bank. Otherwise, the Indian Agent of the foreign vendor has to submit a Bank Guarantee through a Nationalized Bank of India.
10. **On-site Installation:** - The equipment or machinery has to be installed or commissioned by the successful bidder within 15 to 20 days from the date of receipt of the item at site of IIT Madras.
11. **Warranty/Guarantee:** - The offer should clearly specify the warranty or guarantee period for the machinery/equipment. Any extended warranty offered for the same has to be mentioned separately. (For more details please refer our Technical Specifications).
12. **Late offer:** - The offers received after the due date and time will **not** be considered. The Institute shall not be responsible for the late receipt of Tender on account of Postal, Courier or any other delay.
13. **Acceptance and Rejection:** - I.I.T. Madras has the right to accept the whole or any part of the Tender or portion of the quantity offered or reject it in full without assigning any reason.
14. **Do not quote the optional items or additional items unless otherwise mentioned in the Tender documents / Specifications.**
15. **Disputes and Jurisdiction:** -
- a. **Settlement of Disputes:** Any dispute, controversy or claim arising out of or in connection with this PO including any question regarding its existence, validity, breach or termination, shall in the first instance be attempted to be resolved amicably by both the Parties. If attempts for such amicable resolution fails or no decision is reached within 30 days whichever is earlier, then such disputes shall be settled by arbitration in accordance with the Arbitration and Conciliation Act, 1996. Unless the Parties agree on a sole arbitrator, within 30 days from the receipt of a written request by one Party from the other Party to so agree, the arbitral panel shall comprise of three arbitrators. In that event, the supplier will nominate one arbitrator and the Project Coordinator of IITM shall nominate one arbitrator. The Dean IC&SR will nominate the Presiding Arbitrator of the arbitral tribunal. The arbitration proceedings shall be carried out in English language. The cost of arbitration and fees of the arbitrator(s) shall be shared equally by the Parties. The seat of arbitration shall be at IC&SR IIT Madras, Chennai..

- b. **The Applicable Law:** This Purchase Order shall be construed, interpreted and governed by the Laws of India, Court at Chennai shall have exclusive jurisdiction subject to the arbitration clause.
- c. Any legal disputes arising out of any breach of contract pertaining to this tender shall be settled in the court of competent jurisdiction located within the city of Chennai in Tamil Nadu.

16. All Amendments, time extension, clarifications etc., will be uploaded on the website only and will not be published in newspapers. Bidders should regularly visit the above website to keep themselves updated. No extension in the bid due date/ time shall be considered on account of delay in receipt of any document by mail.

**Acknowledgement:** - It is hereby acknowledged that the tenderer has gone through all the conditions mentioned above and agrees to abide by them.

**SIGNATURE OF TENDERER  
ALONG WITH SEAL OF THE COMPANY WITH DATE**

## ANNEXURE-I

*Equipment description: Inverted Optical Research Microscope for Bright Field, Phase contrast and Fluorescence applications with Dual mode camera as per the specifications listed below.*

### **A. Minimum technical specifications for one unit of Inverted Optical Research Microscope:**

<b>1</b>	<b>Microscope Stand</b>	Large, stable, bearing mounted Microscopy stand with provision to attach camera on Left Side port.
		Coded camera side port to the left-hand side with 0%/100% and 80%/20% (viewport/eyepieces) split with 16 mm or more field of view (FOV) for Camera.
		Objective nosepiece with 6 coded positions.
<b>2</b>	<b>Focusing</b>	Manual Z-axis focusing with body mounted coarse and fine knobs having a travel range preferably 11 mm or more
<b>3</b>	<b>Observation tube</b>	Binocular with 45 degrees viewing angle and minimum 25mm of field of view (FOV).
<b>4</b>	<b>Illumination</b>	Coded Transmitted Light column tilting mechanism continuously variable luminance adjustment of brightness, with field diaphragms.
		Inbuilt fast shutter of minimum 10ms operation time.
		Must be LED-based for longer life (approx. 30000 hours or more)
<b>5</b>	<b>Condenser</b>	Universal turret condenser with minimum 70mm Working Distance(WD)
		Minimum five positions turret to use Transmitted Light (TL)
		Contrasting methods: Bright Field (BF), Polarization (POL), and Differential Interference Contrast (DIC).
<b>6</b>	<b>Contrasting Method</b>	Microscope should be equipped for Bright Field, Phase Contrast & Fluorescence modes of operation.
<b>7</b>	<b>Mechanical stage &amp; Holder</b>	Three point mounted regular fixed stage. Aluminium, ceramic -coated, scratch-proof and hard.
		Object guide for regular, heatable or cooling fixed stages, with deep lying coaxial control drive,
		Must have an accurate and sensitive adjusting knob.
		Object guide Travel Range: 80 x 120 mm or more.
		Universal Holding Frame, suitable for fixed stages of inverted Microscopes with object guide.
		Holding frame for petri dishes with diameter 24 mm, up to 68 mm and slides with a length up to 120 mm.
<b>8</b>	<b>Fluorescence attachment &amp; Illumination</b>	Encoded Fluorescence Filter turret with 6 or more positions.
		Spectral coverage is from the UV (DAPI excitation) to the Red region (Cy5 excitation).
		Cool LED light source to cover intense, broad-spectrum for imaging most common fluorescent stains.
		Life time 30000 operating hours or more.

<b>9</b>	<b>Fluorescence Filters</b>	Fluorescence Filters: Pixel shift corrected fluorescence filters for (i) DAPI (ii) FITC/GFP/Alexa488 and (iii) TRITC/RHOD/Cy3.
<b>10</b>	<b>Objectives</b>	Nose piece: minimum six positions coded to hold following objectives ; Numerical Aperture (NA); Phase contrast (PH); Free Working Distance (FWD) <ol style="list-style-type: none"> <li>1. 5 times magnification; NA = 0.12, phase contrast; FWD &gt; 12 mm</li> <li>2. 10 times magnification; NA = 0.25, phase contrast; FWD &gt; 10 mm</li> <li>3. 20 times magnification; NA = 0.35, phase contrast; FWD &gt; 6.5 mm</li> <li>4. 40 times magnification; NA = 0.55, phase contrast; FWD &gt; 3.0 mm with correction collar</li> <li>5. 60 times magnification or more; NA = 0.70, phase contrast; FWD &gt; 2.5 mm with correction collar</li> </ol> <p>All objectives with better NA and FWD will be preferred.</p>
<b>11</b>	<b>Eyepieces</b>	10x / 22 mm field of view or more with diopter adjustment for both the eyes
<b>12</b>	<b>Dual mode Camera</b>	Dual mode monochrome and color CCD camera. Number of Pixels 1900 x 1400, or more Pixel size 5 $\mu$ m x 5 $\mu$ m or smaller A typical full well capacity of 15.000 electrons or more Various binning modes (color & monochrome), and overlapping mode for high speed imaging should be available. Number of Frames per second (color) : 1 x 1 binning, minimum 1900 x 1400 pixels with 40 fps or more : 1 x 1 binning, minimum 1250 x 1000 pixels with 50 fps or more : 3 x 3 binning, minimum 600 x 450 with 90 fps or more. : 5 x 5 binning, minimum 350 x 250 with 100 fps or more. Dynamic range ~ 65 dB or higher Detector must have One stage regulated Peltier cooling 16-bit A/D converter together with 12 bit and 8 bit digitization mode. It must have provision for C-Mount adapter
<b>13</b>	<b>Software</b>	Software to control all the motorized components of Microscope and above camera for acquisition of images control. Should include modules for Time lapse & Multichannel, -Image Processing & Measurement: - Adjust contrast, brightness and gamma on every image - Merge, crop and image arithmetic - Intensity, length and area measurements - Measurement of area intensities through image stacks - Online measurement whilst displaying a live image - Parallax correction
	<b>Note</b>	Microscope, objectives, Camera & Software all four must be from the same manufacturer.
		LINK to be provided to check paper published by different scientists.
<b>14</b>	<b>Computer</b>	PC workstation i5 processor, minimum 8 GB DDR4 RAM or better, NVIDIA graphics card with minimum 1 GB RAM, 1 TB SATA HDD and 24 inches HD display.
<b>15</b>	<b>Future Upgradation (Optional)</b>	63 times magnification; NA = 1.30; OIL immersion objective along with DIC attachment to be quoted 100 times magnification; NA = 1.32; OIL immersion objective to be quoted

## **B. Other requirements**

1.	On-site installations and testing at IIT Madras Lab, Chennai is required.
2.	CIF/ CIP price (Chennai) is only acceptable and to be quoted.
3.	Warranty should be 36 months from the acceptance of the equipment or 39 months from the delivery whichever is later.
4.	Manufacturer should be in a position to supply the accessories on demand for the next 10 years after installation of the equipment.
5.	Vendor must submit the <b>point-wise technical compliance statement</b> supported with the relevant technical manual along with the bid ( <b>use Annexure II</b> ).
6.	The vendor must have installed at least five similar Inverted Optical Research Microscope in national laboratories or centrally funded institutes (like IITs, NITs, IISc, NISER, IISERs and central universities etc) in India in last five years. Submit installation certificates along with technical specifications.



## ANNEXURE-II

*Equipment description: Inverted Optical Research Microscope for Bright Field, Phase contrast and Fluorescence applications with Dual mode camera as per the specifications listed below.*

### **A. Minimum technical specifications for one unit of Inverted Optical Research Microscope:**

	Detailed Specification	Party confirmation	
		Y/N	Remarks
<b>Microscope Stand</b>	Large, stable, bearing mounted Microscopy stand with provision to attach camera on Left Side port.		
	Coded camera side port to the left-hand side with 0%/100% and 80%/20% (viewport/eyepieces) split with 16 mm or more field of view (FOV) for Camera.		
	Objective nosepiece with 6 coded positions.		
<b>Focusing</b>	Manual Z focusing with body mounted Coarse and Fine knobs with travel range preferably 11 mm or more		
<b>Observation tube</b>	Binocular with 45 degree viewing angle and 25mm FOV.		
<b>Illumination</b>	Coded Transmitted Light column tilting mechanism continuously variable luminance adjustment of brightness, with field diaphragms.		
	Inbuilt fast shutter of minimum 10ms operation time.		
	Must be LED-based for longer life (approx. 30000 hours or more)		
<b>Condenser</b>	Universal turret condenser with minimum 70mm Working Distance(WD)		
	Minimum five positions turret to use Transmitted Light (TL)		
	Contrasting methods: Bright Field (BF), Polarization (POL), and Differential Interference Contrast (DIC).		
<b>Contrasting Method</b>	Microscope should be equipped for Bright Field, Phase Contrast & Fluorescence modes of operation.		
<b>Mechanical stage &amp; Holder</b>	Three point mounted regular fixed stage. Aluminium, ceramic -coated, scratch-proof and hard.		
	Object guide for regular, heatable or cooling fixed stages, with deep lying coaxial control drive,		
	Must have an accurate and sensitive adjusting knob.		
	Object guide Travel Range: 80 x 120 mm or more.		
	Universal Holding Frame, suitable for fixed stages of inverted Microscopes with object guide.		
	Holding frame for petri dishes with diameter 24 mm, up to 68 mm and slides with a length up to 120 mm.		

<b>Fluorescence attachment &amp; Illumination</b>	Encoded Fluorescence Filter turret with 6 or more positions.		
	Spectral coverage is from the UV (DAPI excitation) to the Red region (Cy5 excitation).		
	Cool LED light source to cover intense, broad-spectrum for imaging most common fluorescent stains.		
	Life time 30000 operating hours or more.		
<b>Fluorescence Filters</b>	Fluorescence Filters: Pixel shift corrected fluorescence filters for (i)DAPI (ii)FITC/GFP/Alexa488 and (iii)TRITC/RHOD/Cy3.		
<b>Objectives</b>	Nosepiece: minimum six positions coded to hold following objectives. Numerical Aperture (NA); Phase contrast (PH); Free Working Distance (FWD)		
	5 times magnification; NA = 0.12, phase contrast; FWD > 12 mm		
	10 times magnification; NA = 0.25, phase contrast; FWD > 10 mm		
	20 times magnification; NA = 0.35, phase contrast; FWD > 6.5 mm		
	40 times magnification; NA = 0.55, phase contrast; FWD > 3.0 mm with correction collar		
	60 times magnification or more; NA = 0.70, phase contrast; FWD > 2.5 mm with correction collar		
<b>Eyepieces</b>	10x / 22 mm Field of view or more with diopter adjustment for both eyes		
<b>Dual mode Camera</b>	Dual mode monochrome and color CCD camera.		
	Number of Pixels 1900 x 1400, or more		
	Pixel size 5 $\mu$ m x 5 $\mu$ m or smaller		
	A typical full well capacity of 15.000 electrons or more		
	Various binning modes (color & monochrome) and Overlapping mode for high speed imaging should be available.		
	Number of Frames per second (color) : 1 x 1 binning, minimum 1900 x 1400 pixels with 40 fps or more : 1 x 1 binning, minimum 1250 x 1000 pixels with 50 fps or more : 3 x 3 binning, minimum 600 x 450 with 90 fps or more. : 5 x 5 binning, minimum 350 x 250 with 100 fps or more.		
	Dynamic range ~ 65 dB or higher		
	Detector must have One stage regulated Peltier cooling		
	16-bit A/D converter together with 12 bit and 8 bit digitization mode.		
	It must have provision for C-Mount adapter		
<b>Software</b>	Software to control all the motorized components of Microscope and above camera for acquisition of images control. Should include modules for Time lapse & Multichannel, -Image Processing & Measurement: - Adjust contrast, brightness and gamma on every image		

	<ul style="list-style-type: none"> <li>- Merge, crop and image arithmetic</li> <li>- Intensity, length and area measurements</li> <li>- Measurement of area intensities through image stacks</li> <li>- Online measurement whilst displaying a live image</li> <li>- Parallax correction</li> </ul>		
<b>Note</b>	Microscope, objectives, Camera & Software all four must be from the same manufacturer.		
	LINK to be provided to check paper published by different scientists.		
<b>Computer</b>	PC workstation i5 processor, minimum 8 GB DDR4 RAM or better, NVIDIA graphics card with minimum 1 GB RAM, 1 TB SATA HDD and 24 inches HD display.		
<b>Future Upgradation (optional)</b>	63 times magnification; NA = 1.30; OIL immersion objective along with DIC attachment to be quoted		
	100 times magnification; NA = 1.32; OIL immersion objective to be quoted		

## **B. Other requirements**

S.No.	Detailed Specification	Party confirmation	
		Y/N	Remarks
1.	On-site installations and testing at IIT Madras Lab, Chennai is required.		
2.	CIF/ CIP price (Chennai) is only acceptable and to be quoted.		
3.	Warranty should be 24 months from the acceptance of the equipment or 27 months from the delivery whichever is later.		
4.	Manufacturer should be in a position to supply the accessories on demand for the next 10 years after installation of the equipment.		
5.	Vendor must submit the <b>point-wise technical compliance</b> statement supported with the relevant technical manual along with the bid ( <b>use Annexure II</b> ).		
6.	The vendor must have installed at least five similar Inverted Fluorescence Research Microscopes in national laboratories or centrally funded institutes (like IITs, NITs, IISc, NISER, IISERs and central universities etc) in India in last five years. Submit installation certificates along with technical specifications.		