



Centre for Advanced Research in Sciences (CARS)  
University of Dhaka, Dhaka 1000.

**Invitation for Tender (National)**

Ref No. CARS/ST/P-231/OTM/NLOL/RB/16-17.

Date : ১৭-০২-১৪২৪ বঙ্গাব্দ  
31-05-2017 খ্রিষ্টাব্দ

Sealed Tenders are hereby invited from reputed supplier for Supply, Installation, Testing and Commissioning of Equipments for the Non Linear Optics and Laser (NLOL) Laboratory at the Centre for Advanced Research in Sciences (CARS), University of Dhaka.

1.	Ministry/Division	Ministry of Education	
2.	Agency	University of Dhaka	
3.	Procuring Entity Name	Centre for Advanced Research in Sciences (CARS), University of Dhaka.	
4.	Procuring Entity Code	Not used	
5.	Procuring Entity District	Dhaka	
6.	Invitation for	Research based Equipments.	
7.	Invitation Ref No.	Ref. No. & Date: CARS/ST/P-231/OTM/NLOL/RB/16-17, Date: ১৭-০২-১৪২৪ বঙ্গাব্দ/ 31-05-2017 খ্রিষ্টাব্দ	
8.	Date :	১৭-০২-১৪২৪ বঙ্গাব্দ 31-05-2017 খ্রিষ্টাব্দ	
<b>KEY INFORMATION</b>			
9.	Procurement Method	Open Tendering Method	
<b>FUNDING INFORMATION</b>			
10.	Budget and Source of Funds	Revenue Budget (RB)	
11.	Development Partner (if applicable)	N/A	
<b>PARTICULAR INFORMATION</b>			
12.	Project/Programme Code (if applicable)	Not used	
13.	Project/Programme Name (if applicable)	Not Applicable	
14.	Tender Package No.	As mentioned in clause 26	
15.	Tender Package Name	Supply, Installation, Testing and Commissioning of Equipments for the Non Linear Optics and Laser (NLOL) Laboratory at the CARS.	
16.	Tender Publication Date	১৭-০২-১৪২৪ বঙ্গাব্দ 31-05-2017 খ্রিষ্টাব্দ	
17.	Tender Last Selling Date	০৫-০৩-১৪২৪ বঙ্গাব্দ 19-06-2017 খ্রিষ্টাব্দ	
18.	Tender Closing Date and Time	<b>Date :</b>	<b>Time:</b>
		০৬-০৩-১৪২৪ বঙ্গাব্দ 20-06-2017 খ্রিষ্টাব্দ	12:00 Noon
19.	Tender Opening Date and Time	০৬-০৩-১৪২৪ বঙ্গাব্দ 20-06-2017 খ্রিষ্টাব্দ	12:30 pm

20.	<b>Name &amp; Address of the Office(s)</b>	<b>Address(s)</b>		
	-Selling Tender Document (Principal)	(i) Centre for Advanced Research in Sciences (CARS), University of Dhaka.		
	-Receiving Tender Document	(i) Centre for Advanced Research in Sciences (CARS), University of Dhaka.		
	-Opening Tender Document	Centre for Advanced Research in Sciences (CARS), University of Dhaka.		
21.	Place/Date/Time of Pre-Tender Meeting	<b>Name/Address</b>	<b>Date: Time</b>	
<b>INFORMATION FOR TENDERER</b>				
22.	Eligibility of Tenderer's	(i) Trade License (ii) VAT Registration Certificate (iii) Income Tax Clearance Certificate (iv) Experience Certificate in similar supply and works of comparable value in a single tender in last five years as mentioned in TDS (v) Bank solvency Certificate as mentioned in TDS (vi) Competency certificate of after sale service as mentioned in the TDS (vii) Manufacturer Authorization for suitable Lot or Item only. <b>(viii) Applicant must be owner of the firm or Representative of the firm will be authorized by the owner of the Firm with seal of the owner.</b>		
23.	Brief Description of Goods	Supply, Installation, Testing and Commissioning of Equipments.		
24.	Brief Description of Related Services	<b>Supply, Installation, Testing and Commissioning of Equipments for the Non Linear Optics and Laser (NLOL) Laboratory at the CARS.</b>		
25.	Tender Document Price TK.-2,000.00	The Price of Tender Schedule as mentioned is to be deposited in <b>A/C No. 36000392 -Janata Bank, T.S.C branch, Dhaka University</b> . Tender schedule and terms and conditions may be collected on submission of the deposit receipt from the above mentioned offices on all working days except on the date fixed for submitting the tender.		
26.	<b>Identification/Name of Equipment</b>	<b>Location</b>	<b>Tender Security Amount in Taka</b> <b>Completion Time</b>	
	<b>"Supply, Installation, Testing and Commissioning of Equipments"</b>	CARS, DU.	<b>Item-1 : Motorized linear stage.</b> <b>5,800.00</b>	90 days from the date of issuance of Purchase order
			<b>Item-2 : Thermal Power Sensor.</b> <b>4,000.00</b>	
			<b>Item-3 : USB Laser Power Meter Console.</b> <b>1,700.00</b>	
<b>PROCURING ENTITY DETAILS</b>				
27.	Name of Official Inviting Tender	Prof. Dr. Golam Mohammed Bhuiyan		
28.	Designation of Official Inviting Tender	Director		
29.	Address of Official Inviting Tender	Centre for Advanced Research in Sciences (CARS), University of Dhaka.		
30.	Contact details of Official Inviting Tender	9661900/Ext. 4616/ 4636.		
31.	The procuring entity reserves the right to accept or reject any or all tenders without assigning any reason whatsoever. The procuring authority also reserves the right to omit, increase and/or decrease the quantity of any Lot/item/items from the Tender. The suppliers must abide by the decision of the University authority. Tender form, schedule of items of supply, tender notice and terms and conditions etc. will form the integral part of the tender. The suppliers should write the <b>name of the Lot and Lot No and the name of the firm on the envelope clearly</b> . Vat, Income Tax and other Taxes, if any, imposed by the Govt. will be deducted from their bills as per Govt. rules.			

স্বাক্ষরিত/-

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**Director**

Centre for Advanced Research in Sciences (CARS)  
University of Dhaka.

## Section 6. Schedule of Requirements

*This Section provides the List of Goods and Delivery Schedule and List of Related Services and Completion Schedule and must be carefully prepared by a Procuring Entity for each object of procurement.*

Invitation for Tender No :

Date :

Tender Package No :

### A. List of Goods & Related services and Delivery Schedule

Item No.	Description of Item	Unit of Measurement	Quantity	Point of Delivery	Delivery Period Required																								
1	2	3	4	5	6																								
<b>Item - 1 : Motorized linear stage.</b>				Note-1	Note-2																								
01	<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%; text-align: left;">Specification:</th> <th style="text-align: left;">Value</th> </tr> </thead> <tbody> <tr> <td>Microstep Size (Default Resolution)</td> <td>0.124023437 <math>\mu</math>m</td> </tr> <tr> <td>Built-in Controller</td> <td>Yes</td> </tr> <tr> <td>Travel Range</td> <td>152.4 mm</td> </tr> <tr> <td>Accuracy (unidirectional)</td> <td>175 <math>\mu</math>m</td> </tr> <tr> <td>Repeatability</td> <td>&lt; 4 <math>\mu</math>m</td> </tr> <tr> <td>Backlash</td> <td>&lt; 30 <math>\mu</math>m</td> </tr> <tr> <td>Maximum Speed</td> <td>65 mm/s</td> </tr> <tr> <td>Minimum Speed</td> <td>0.0012 mm/s</td> </tr> <tr> <td>Speed Resolution</td> <td>0.0012 mm/s</td> </tr> <tr> <td>Encoder Resolution</td> <td>200 CPR</td> </tr> <tr> <td>Encoder Type</td> <td>Motor Mounted Rotary Quadrature Encoder</td> </tr> </tbody> </table>	Specification:	Value	Microstep Size (Default Resolution)	0.124023437 $\mu$ m	Built-in Controller	Yes	Travel Range	152.4 mm	Accuracy (unidirectional)	175 $\mu$ m	Repeatability	< 4 $\mu$ m	Backlash	< 30 $\mu$ m	Maximum Speed	65 mm/s	Minimum Speed	0.0012 mm/s	Speed Resolution	0.0012 mm/s	Encoder Resolution	200 CPR	Encoder Type	Motor Mounted Rotary Quadrature Encoder	No's	01	CARS, DU	90 days from the date of issuance a purchase order.
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<b>Peak Thrust</b>	25 N				
<b>Maximum Continuous Thrust</b>	25 N				
<b>Communication Interface</b>	RS-232				
<b>Communication Protocol</b>	Zaber ASCII (Default), Zaber Binary				
<b>Maximum Centered Load</b>	30 N				
<b>Maximum Cantilever Load</b>	50 N-cm				
<b>Guide Type</b>	Plain bearing				
<b>Maximum Current Draw</b>	350 mA				
<b>Power Supply</b>	24-48 VDC				
<b>Power Plug</b>	2-pin Screw Terminal				
<b>Linear Motion Per Motor Rev</b>	1.5875 mm				
<b>Motor Steps Per Rev</b>	200				
<b>Motor Type</b>	Stepper (2 phase)				
<b>Motor Rated Current</b>	600 mA/phase				
<b>Inductance</b>	3.5 mH/phase				
<b>Default Resolution</b>	1/64 of a step				
<b>Data Cable Connection</b>	Locking 4-pin M8				
<b>Mechanical Drive System</b>	Lead screw				
<b>Limit or Home Sensing</b>	Magnetic hall sensor				
<b>Manual Control</b>	Yes				
<b>Axes of Motion</b>	1				
<b>LED Indicators</b>	Yes				
<b>Mounting Interface</b>	M3 threaded holes				
<b>Vacuum Compatible</b>	No				
<b>Operating Temperature Range</b>	0 to 50 degrees C				

	<b>RoHS Compliant</b> Yes <b>CE Compliant</b> Yes <b>Weight</b> 0.52 kg				
<b>Item - 2 : Thermal Power Sensor.</b>					
01	<b>Specifications :</b> <b>Detector Type</b> Thermal surface aNbsorber <b>Wavelength Range</b> 0.25 – 11 μm <b>Optical Power Working Range</b> 10 mW – 40 W <b>Max Average Power Density</b> 2 kW/cm <sup>2</sup> <b>Max Pulse Energy</b> 0.5 J/cm <sup>2</sup> (1 ns pulse) 10 J/cm <sup>2</sup> (1 ms pulse) <b>Linearity</b> ± 1% <b>Resolution 1)</b> 1 mW <b>Measurement Uncertainty 2)</b> ±3% 1064 nm ±5% 250 – 2940 nm <b>Typical Application</b> Mid Power Lasers <b>Laser Types</b> Diode, He-Cd, Arlo, Krlo, Dye, CO2 <b>Coating /Diffuser</b> High power broadband HPB <b>Cooling</b> Convection <b>Head</b> NTC Themistor 3 kΩ <b>Temperature Measurement Console</b> PM100D, PM100A, PM100 <b>Compatibility</b> USB, PM200, PM320E <b>Response Time</b> < 1 s <b>Sensor Dimensions</b> 100 x 100 x 55 mm <b>Active Detector Area</b> Ø25 mm <b>Input Aperture</b> Ø25 mm <b>Cable Length</b> 1.5 m <b>Connector</b> Sub-D 9p male <b>Weight</b> 1 kg <b>Post</b> M6 threads, 75 mm post included <b>Aperture Thread</b> SM1, outer thread via SM1/ 4 x #4-40 cage adapter <b>Fiber Adapters (optional)</b> FC, SC, LC, SMA, ST	No's	1		

<b>Item - 3 : USB Laser Power Meter Console.</b>						
01	<p><b>Specifications:</b></p> <ul style="list-style-type: none"> <li>• Compact USB Power and Energy Meter Interface</li> <li>• Compatible with Over 25 Photodiode, Thermal, and Pyroelectric Sensors</li> <li>• Console Comes Calibrated with Certificate of Calibration</li> <li>• 1 GB USB Memory Stick with Software Including LabVIEW™ and LabWINDOWS™ /CVI Driver Set, and Operating Manual.</li> </ul> <p><b>Compatible Sensors</b>            Photodiode, Thermal, Pyroelectric</p> <p><b>Optical Power Range<sup>a</sup></b>        100 pW to 200 W</p> <p><b>Optical Energy Range<sup>a</sup></b>        3 μJ to 15 J</p> <p><b>Available Sensor Wavelength Range<sup>a</sup></b>    185 nm - 25 μm</p> <p><b>GUI Display Refresh Rate</b>    300 Hz(PC Dependent)</p> <p><b>Analog Input Bandwidth<sup>a</sup></b>    DC - 100 kHz</p> <p><b>Photodiode Sensor Range<sup>b</sup></b>    50 nA - 5 mA</p> <p><b>Thermopile Sensor Range<sup>b</sup></b>    1 mV - 1 V</p> <p><b>Pyroelectric Sensor Range<sup>b</sup></b>    100 mV - 100 V</p>	No's	1			

**Country of Origin : USA/UK/EU/Germany/Japan/Australia/Canada/Equivalent.**

# Section 7. Technical Specifications.

The Goods and Related Services shall comply with following Technical Specifications:

Item No	Name of Item or Related Service	Technical Specification and Standards																																				
»	CARS	Supplier																																				
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	<p><b>Load</b></p> <p><b>Guide Type</b> Plain bearing</p> <p><b>Maximum Current Draw</b> 350 mA</p> <p><b>Power Supply</b> 24-48 VDC</p> <p><b>Power Plug</b> 2-pin Screw Terminal</p> <p><b>Linear Motion Per Motor Rev</b> 1.5875 mm</p> <p><b>Motor Steps Per Rev</b> 200</p> <p><b>Motor Type</b> Stepper (2 phase)</p> <p><b>Motor Rated Current</b> 600 mA/phase</p> <p><b>Inductance</b> 3.5 mH/phase</p> <p><b>Default Resolution</b> 1/64 of a step</p> <p><b>Data Cable Connection</b> Locking 4-pin M8</p> <p><b>Mechanical Drive System</b> Lead screw</p> <p><b>Limit or Home Sensing</b> Magnetic hall sensor</p> <p><b>Manual Control</b> Yes</p> <p><b>Axes of Motion</b> 1</p> <p><b>LED Indicators</b> Yes</p> <p><b>Mounting Interface</b> M3 threaded holes</p> <p><b>Vacuum Compatible</b> No</p> <p><b>Operating Temperature Range</b> 0 to 50 degrees C</p> <p><b>RoHS Compliant</b> Yes</p> <p><b>CE Compliant</b> Yes</p> <p><b>Weight</b> 0.52 kg</p>	
<b>Item - 2 : Thermal Power Sensor.</b>		
01	<p><b>Specifications :</b></p> <p><b>Detector Type</b> Thermal surface aNbsorber</p> <p><b>Wavelength Range</b> 0.25 – 11 μm</p> <p><b>Optical Power</b> 10 mW – 40 W</p>	



<b>Working Range</b>	
<b>Max Average Power Density</b>	2 kW/cm <sup>2</sup>
<b>Max Pulse Energy</b>	0.5 J/cm <sup>2</sup> (1 ns pulse) 10 J/cm <sup>2</sup> (1 ms pulse)
<b>Linearity</b>	± 1%
<b>Resolution 1)</b>	1 mW
<b>Measurement Uncertainty 2)</b>	±3% 1064 nm ±5% 250 – 2940 nm
<b>Typical Application</b>	Mid Power Lasers
<b>Laser Types</b>	Diode, He-Cd, Arlo, Krlo, Dye, CO2
<b>Coating /Diffuser</b>	High power broadband HPB
<b>Cooling</b>	Convection
<b>Head</b>	NTC Themistor 3 kΩ
<b>Temperature Measurement</b>	
<b>Console</b>	PM100D, PM100A, PM100
<b>Compatibility</b>	USB, PM200, PM320E
<b>Response Time</b>	< 1 s
<b>Sensor</b>	100 x 100 x 55 mm
<b>Dimensions</b>	
<b>Active Detector Area</b>	Ø25 mm
<b>Input Aperture</b>	Ø25 mm
<b>Cable Length</b>	1.5 m
<b>Connector</b>	Sub-D 9p male
<b>Weight</b>	1 kg
<b>Post</b>	M6 threads, 75 mm post included
<b>Aperture Thread</b>	SM1, outer thread via SM1/ 4 x #4-40 cage adapter
<b>Fiber Adapters (optional)</b>	FC, SC, LC, SMA, ST

## Item - 3 : USB Laser Power Meter Console.

01

### Specifications:

- Compact USB Power and Energy Meter Interface
- Compatible with Over 25 Photodiode, Thermal, and Pyroelectric Sensors
- Console Comes Calibrated with Certificate of Calibration
- 1 GB USB Memory Stick with Software Including LabVIEW™ and LabWINDOWS™ /CVI Driver Set, and Operating Manual.

<b>Compatible Sensors</b>	Photodiode, Thermal, and Pyroelectric
<b>Optical Power Range<sup>a</sup></b>	100 pW to 200 W
<b>Optical Energy Range<sup>a</sup></b>	3 μJ to 15 J
<b>Available Sensor Wavelength Range<sup>a</sup></b>	185 nm - 25 μm
<b>GUI Display Refresh Rate</b>	300 Hz(PC Dependent)
<b>Analog Input Bandwidth<sup>a</sup></b>	DC - 100 kHz
<b>Photodiode Sensor Range<sup>b</sup></b>	50 nA - 5 mA
<b>Thermopile Sensor Range<sup>b</sup></b>	1 mV - 1 V
<b>Pyroelectric Sensor Range<sup>b</sup></b>	100 mV - 100 V