



**PONDICHERRY UNIVERSITY
(A Central University)**

**Tender document for supply of
Equipments for Laser Physics Laboratory**

- i. Optic and Opto-Mechanical Components**
- ii. Modular Optical Tweezers**
- iii. Boxcar Averager System**
- iv. Gated Photon counter**
- v. Dual Channel Lock-in Amplifier**
- vi. Double Monochromator**

**Under DST FIST – II
Department of Physics
Pondicherry University**

Note

The Tender document can be downloaded from the website

<https://eprocure.gov.in/eprocure/app>

CONTENTS

S.No	Content	Page No.
I	Terms and conditions under two bid system	2
II	Check list to be submitted along with the Technical bid	7
III	<u>Description & Technical Specifications of Instrument</u>	8
	1. Optic and Opto-Mechanical components	
	2. Modular Optical Tweezer	13
	3. Boxcar Averager System	14
	4. Gated Photon Counter	16
	5. Dual Channel Lock-in Amplifier	17
	6. Double Monochromator	19
IV	Annexure- I (Bidder's Warranty)	20
V	Annexure-II (Bank Guarantee)	21

TERMS AND CONDITIONS (UNDER TWO BID SYSTEM)

I. Instructions to the Bidder: -

1. Purchase of Tender Document

The Tender document can be downloaded from the website <https://eprocure.gov.in/eprocure/app>

2. Tender Document fee and EMD to be submitted

S.No	Equipment	Tender Document fee (₹)	E.M.D (₹)
1.	Optical and Opto-Mechanical components	2,500/-	1, 75,000/-
2.	Modular Optical Tweezer		
3.	Boxcar Averager System		
4.	Gated Photon Counter		
5.	Dual Channel Lock-in Amplifier		
6.	Double Monochromator		

3. Last Date & Time for submission of Tender Documents

19th July 2019 at 2.00 p.m and it will be opened on 22nd July 2019 at 3.00 p.m

4. Submission of Tender Document

Tender (technical bid and price bid separately) must be submitted through CPP Portal addressed to “The Head, Department of Physics, Pondicherry University, R.V.Nagar, Kalapet, Puducherry – 605 014, India” positively before the scheduled time.

5. Payment of EMD & Tender Document fee:

The Tender must be accompanied with EMD (refundable) and Tender document fee (non-refundable), as stated above, by means of a separate Demand Drafts, in favour of the Finance Officer, Pondicherry University, payable at Puducherry.

6. Quoting the Core price & Tax, Duties, Discount etc.

The taxes / duties / discounts, if applicable, are to be explicitly and separately shown in the bid and under no circumstances these components shall be added to the basic price and shown as single price. All the components of taxes, if applicable, should be shown explicitly and separately.

7. Electrical Power

All equipment must operate at 230V/50 Hz single phase and / or equivalent three phase electrical power.

8. The validity of the Quotation

The validity of the quotation should be for at least 365 days from the opening date of the tender.

9. Late Bids

The offers will not be considered if received after the bid closing date and time.

10. Invalid quotes

The offers received through telex / tele-fax / e-mail/unsealed or open cover will not be accepted by the University under any circumstances.

11. No unsolicited correspondence

No unsolicited correspondence shall be entertained after the submission of the offer.

12. Purchase Agreement

If an order is placed with the firm, the purchase shall be governed by an agreement as per the University rules in force at the time.

13. Additions in terms and conditions

Additional terms and conditions will be incorporated in the purchase order, if needed, to safe guard the interests of the University.

14. Non-transferable

Tender is not transferable.

15. Power to reject the offer

Any offer containing incorrect and incomplete information shall be liable for rejection.

Pondicherry University reserves the right to accept / reject any offer in full or in part or accept any offer other than the lowest offer without assigning any reason thereof. *However, deficiencies on any one or, more of the following crucial criteria will be a material factor, for consideration other than the Lowest Quotation: -*

- a) Total Number of installations of the similar Equipment in the premier Research/Academic Institutes in India.*
- b) Availability of Service Network in India, especially in Chennai or Bengaluru.*
- c) Valuable feedback from the present users about the performance, service support, accuracy of result, etc.*
- d) Any other techno commercial information which is deemed fit to be important in the opinion of the University.*

II. Price Schedule

16. The bidder who is capable of supplying the entire solutions for the instrument quoted as per the list of ITEMS mentioned in the schedule, is alone need to submit their quotation.
17. The rates should be quoted for single units.
18. The price should include the delivery and installation at the Department of Physics, Pondicherry University, Puducherry and training charges (if any).
19. In price bid no other documents like technical manuals, number of installations, Customer list etc. must be there. All such documents must be enclosed in the technical bid.

III. Eligibility:

20. The firm must have the requisite domain expertise with regard to supply, installation and post-sale service of the items they are quoting.
21. The firm should have been in existence for at least **six years** as on the date of this document and must have sufficient number of installations at least three orders of the similar equipment in the premiere Research/academic institutes in India.
22. The firm should have nation-wide Service Network all over India, especially in Chennai or Bengaluru.
23. The feedbacks from the present users of the similar equipment about the performance, service support, accuracy of result, etc. are to be submitted along with the Tender Document.
24. Any other techno commercial information, pertaining to this particular Equipment, principal suppliers, technical background and capability, local agents' background on Scientific Equipment Business, etc. may also be appended along with testimonials and documentary proof.

IV. Conditions of Contract: -

25. The offer must be in English. The rates should be indicated both in figures and words against item specified in the given Annexure. It is preferable that the price be quoted in Indian Rupees or in US Dollars or in major foreign currencies.
26. **The total cost should be quoted for FOB as well as CIF – Pondicherry University, Puducherry.**
27. The price quotes under FOB and CIF should also include the expected installation cost in the University Laboratory at Puducherry and also cost of consumables which are required for the main equipment for initial operation upto a reasonable period.

Tender document for supply of Laser Physics Laboratory Equipments for Department of Physics, Pondicherry University

28. In case of the Principal supplier of Foreign country unable to meet the conditions stated at para no.4, the local agent / dealer should fulfil the above said conditions in respect of Local Insurance, Freight, safety transport and installation, etc.
29. The prices quoted shall remain firm until equipment is supplied to the Department of Physics, Pondicherry University, Puducherry.
30. The University has been granted the benefit of exemption from the payment of the Central Excise Duty and Customs Duty by the Department of Scientific and Industrial Research (DSIR), India, vide their Notification No. 10/97 dt. 01-03-1997 and 51/96 dt. 23.07.96 respectively.

In respect of

- a. Scientific and technical instruments, apparatus, equipment including computers.
 - b. Accessories and spare parts of goods specified in (a) above and consumables.
 - c. Computer software, compact disks, CD ROM, Recording magnetic tapes, microfilms, micro-chips etc.
 - d. Prototypes.
- Customs duties at Indian port, if any, will be to the account of the University.
31. Infra-structural, power and any other requirement for satisfactory installation and commissioning of the whole system must be provided, at least 120 days in advance of the installation to be commenced. All drawing for electrical connections, electrical safety items piping work etc. must be provided in detail.
 32. Complete technical specifications and literature, including process flow, to be included with the quotation. Manufacturers of various major parts/equipment must be mentioned explicitly.
 33. A clear statement regarding availability of after-sales service and availability of spare-parts for next 10 years should be included.
 34. Please give a recent customer list (within last five years) with contact details including email address.
 35. If the tenderer have an authorized representative/agency in India, the technical ability of the agency to take care of the problems in the system, if developed later within the warranty and outside the warranty period has to be provided clearly. The responsibility of the Indian agent also must be clearly specified.
 36. The bidder from abroad shall obtain, if required, export permission from the appropriate authorities in his country or the country of origin for items to be shipped to India in case of items to be imported. The University shall provide necessary information if required for this purpose.
 37. The bidder from within India shall obtain the requisite approval for Imports etc., if required.
 38. **Warranty:** The material covered under the purchase order, when installed, shall be warranted for the quality, workmanship, trouble free operation and performance for a period of **at least 36 months from the date of installation and the system into**

Tender document for supply of Laser Physics Laboratory Equipments for Department of Physics, Pondicherry University

operation at the Pondicherry University, or at least 42 months from the date of receipt of the last lot of the consignment in India. (A signed Bidder's Warranty as per Annexure – I has to be submitted along with the Bid Document)

If any item covered under warranty fails, the same shall be replaced free of cost including all the applicable charges including shipping cost both ways.

- 39. Payments terms:** Normally a letter of Credit will be opened for 100% FOB/CIF price on receipt of order acknowledgement. However, 90% of the LC amount will be paid after receipt of the proof of the shipment of the consignment with necessary documents as per the purchase order.

Balance of 10% of the LC amount shall be made after satisfactory installation and commissioning and against submission of the Installation & Commissioning certificate, duly accepted by the purchaser, and a **performance bond of 10% of the total contract / purchase value in the form of bank guarantee (obtained from Nationalized Bank of India) for the duration of the Warranty period.** (Refer Annexure – II for Bank Guarantee Format)

Bank charges in India shall be borne by the purchaser and outside India shall be borne by the contractor / supplier.

- 40.** In case of any dispute in respect of the tender, all legal matters shall be instituted within the jurisdiction of the place where the purchaser ordinarily resides.
- 41.** No Agency commission will be paid to any authorized agent in India.
- 42.** Liquidated damages: Timely supply of the ordered items, installation, commissioning (wherever is applicable) and training etc. is the essence of the contract. In case of failure to supply within the time specified in the Purchase order, a penalty/LD of 0.5% of the total value per week or a part thereof shall be levied subject to a maximum of 7.5% in respect of items which are not supplied. The decision of Pondicherry University shall be final in this regard.
- 43.** The training should be provided by the firm on the specimen and operation of the equipments for a minimum period of three weeks from the date of installation with an expert team for two persons.

For any clarification with respect to technical specifications, please contact Prof. V.V. Ravi Kanth Kumar, Head, Department of Physics, Pondicherry University, Puducherry.

Email: head.phy@pondiuni.edu.in

hodphyspu@gmail.com

Tel : 0413-2654402

Cell : +91 94874 36539

For any CPP Portal clarification,
eProcurement Cell, Chief Secretariat,
Puducherry – 605 001

Tel: 0413-2233262 / 2220225

Tender document for supply of Laser Physics Laboratory Equipments for Department of Physics, Pondicherry University

Checklist is to be submitted along with the Technical bid

		To be submitted by the firm	To be verified by the Pondicherry University
1	Name of the firm and address		
2	Two sealed covers (Technical bid / Commercial bid)		
3	Earnest Money Deposit (EMD)	Name of the bank:	
		Amount:	
		Date:	
4	Tender Document Fee	Name of the bank:	
		Amount:	
		Date:	
5	GST Registration Copy		
6	Income Tax Returns details for the last three years.		
7	Letter of Authorization from the Original Equipment Manufacturer (OEM) Distributor		
8	Tenderer should be in the business of similar products atleast for 6 years as on the date of submission of the bid. Proof to be submitted		
9	A list of customers with contact details to whom supply were made during last 3 years may be furnished		
10	Name of the service engineer to be deployed and his Contact No.	1. Name & Cell No.	

Signature of the authorized person of the firm

Committee Members:

Descriptions & Technical Specifications of Instruments required

Item 2: Equipments for Laser Physics Laboratory

Annexure 1: Optic and Opto-Mechanical components

Annexure 2: Modular Optical Tweezers

Annexure 3: Boxcar Averager System

Annexure 4: Gated Photon Counter

Annexure 5: Dual Channel Lock-in Amplifier

Annexure 6: Double Monochromator

Annexure-1

Technical Specifications Optic and Opto-Mechanical components

- a) Optical components - For the usage with High power Nd:YAG laser;
- b) Model Number/specific company make if mentioned is for indicative purpose only. Components of equivalent or better than mentioned may be quote
- c) All the components/items must be supplied by single vendor for want of compatibility

Sr No	Specifications	Quantity
1	Ø1" Mounted High-Power Precision Pinhole, $10 \pm 1 \mu\text{m}$ Pinhole Diameter	1
2	Ø1" Mounted High-Power Precision Pinhole, $25 \pm 2 \mu\text{m}$ Pinhole Diameter	1
3	Ø1" Mounted High-Power Precision Pinhole, $50 \pm 3 \mu\text{m}$ Pinhole Diameter	1
4	8-32 Cap Screw and Hardware Kit	1
5	8-32 Setscrew and Hardware Kit	1
6	Ø25 mm OG530 Colored Glass Filter, 530 nm Longpass	2
7	Ø25 mm RG1000 Colored Glass Filter, 1000 nm Longpass	2
8	Visible Longpass Filter Kit, Mounted, Set of 10	1
9	IR Longpass Filter Kit, Mounted, Set of 10	1
10	Visible Shortpass Filter Kit, Mounted, Set of 10	1
11	Ø25 mm N-WG280 Colored Glass Filter, 280 nm Longpass	2
12	Ø25 mm GG400 Colored Glass Filter, 400 nm Longpass	2
13	Shortpass Filter, Cut-Off Wavelength: 500 nm	2
14	Shortpass Filter, Cut-Off Wavelength: 1000 nm	2
15	f=50 mm, Ø1" UVFS Bi-Convex Lens, ARC: 650 - 1050 nm	2

Tender document for supply of Laser Physics Laboratory Equipments for Department of Physics, Pondicherry University

16	f=50 mm, Ø1" UVFS Bi-Convex Lens, ARC: 350 - 700 nm	2
17	Bi-Convex Lens, Ø1", f = 50.0 mm, ARC: 1050 - 1700 nm	2
18	Bi-Convex Lens, Ø1", f = 75.0 mm, ARC: 1050 - 1700 nm	2
19	Bi-Convex Lens, Ø1", f = 100.0 mm, ARC: 1050 - 1700 nm	2
20	Bi-Convex Lens, Ø1", f = 150.0 mm, ARC: 1050 - 1700 nm	2
21	Bi-Convex Lens, Ø1", f = 200.0 mm, ARC: 1050 - 1700 nm	2
22	Bi-Convex Lens, Ø1", f = 1000.0 mm, ARC: 1050 - 1700 nm	2
23	Bi-Convex Lens, Ø1", f = 400.0 mm, ARC: 1050 - 1700 nm	2
24	f=50 mm, Ø1" UVFS Bi-Convex Lens, ARC: 350 - 700 nm Uncoated wavelength range 350nm-2000nm	2
25	Bi-Convex Lens, Ø1", f = 50.0 mm, Uncoated, UVFS	2
26	Bi-Convex Lens, Ø1", f = 75.0 mm, Uncoated, UVFS	2
27	Bi-Convex Lens, Ø1", f = 100.0 mm, Uncoated, UVFS	2
28	Bi-Convex Lens, Ø1", f = 150.0 mm, Uncoated, UVFS	2
29	Bi-Convex Lens, Ø1", f = 200.0 mm, Uncoated, UVFS	2
30	Bi-Convex Lens, Ø1", f = 400.0 mm, Uncoated, UVFS	2
31	Bi-Convex Lens, Ø1", f = 1000.0 mm, Uncoated UVFS	2
32	Best form Spherical lens, Ø1", f = 50.0 mm, Uncoated	2
33	Best form Spherical lens, Ø1", f = 100.0 mm, Uncoated	2
34	Best form Spherical lens, Ø1", f = 200.0 mm, Uncoated	2
35	Best form Spherical lens, Ø1", f = 500.0 mm, Uncoated	2
36	Best form Spherical lens, Ø1", f = 1000.0 mm, Uncoated	2
37	Broadband Dielectric Mirror, 750-1100 nm	10
38	Broadband Dielectric Mirror, 400-750 nm	10
39	Broadband Dielectric Mirror, 350-400 nm	10
40	300 mm Translation Stage with Stepper Motor, Integrated Controller, 1/4"-20 Taps	1
41	Mounted Stainless Steel Iris, 25.0 mm Max Aperture	10
42	Laser Safety Glasses, Amber Lenses, 11 % Visible Light Transmission, Universal Style	5
43	UV/VIS Detector Card: Absorption Band : 250 to 540 nm Emission Band : ~450 to 750 nm	1
44	VIS / IR Detector Card Absorption Band : 400 to 640 nm and 800 to 1700 nm Emission Band : 580 to 750 nm Charging Required : YES	1
45	Optic Tweezers with Stainless Steel Body and Carbon – Fiber Tips	2
46	Forceps, Solid Stainless Steel	1

Tender document for supply of Laser Physics Laboratory Equipments for Department of Physics, Pondicherry University

47	BNC Female to Binding Post	5
48	Banana Adapter—BNC Male to Banana Plug	5
49	Banana Adapter—BNC Female to Banana Plug	5
50	BNC Adapter—Straight Adapter (F – F)	5
51	BNC Adapter—Straight Adapter (M – M)	5
52	BNC Adapter T (F- M- F)	5
53	BNC Adapter – Elbow Adapter (M – F)	5
54	Variable Terminator : 50 Ω , 100 Ω , 500 Ω , 1K Ω , 5 k Ω , 10 K Ω and 50 K Ω	1
55	Slip-On Post Collar for $\phi 1/2$ “	20
56	Rotating clamp for $\phi 1/2$ “ posts, 360 ⁰ Continuously Adjustable, 3/16” Hex	10
57	Mounting Base, 1” x 3” x 3/8 “	50
58	Mounting Base, 1” x 2.3” x 3/8 “	50
59	Flip Mount Adapter, Imperial	2
60	Heavy Duty Switchable Magnetic Base, 1 / 4 “ – 20 Mounting stud	5
61	Heavy-Duty Variable Height Clamp, 1 / 4”-20 Tapped	10
62	Table Clamp, Tight Space Applications	10
63	$\phi 1/2$ " Post Holder, Spring-Loaded Hex-Locking Thumbscrew, L = 2"	10
64	$\phi 1/2$ " Post Holder, Spring-Loaded Hex-Locking Thumbscrew, L = 4"	10
65	$\phi 1/2$ " Post Holder, Spring-Loaded Hex-Locking Thumbscrew, L = 6"	20
66	$\phi 1$ " 50:50 UVFS Plate Beamsplitter, Coating: 250 - 450 nm, t = 5 mm	5
67	$\phi 1$ " 10:90 (R:T) UVFS Plate Beamsplitter, Coating: 400-700 nm, t = 5 mm	2
68	$\phi 1$ " 30:70 (R:T) UVFS Plate Beamsplitter, Coating: 400 - 700 nm, t = 5 mm	2
69	$\phi 1$ " 50:50 UVFS Plate Beamsplitter, Coating: 400 - 700 nm, t = 5 mm	5
70	$\phi 1$ " 10:90 (R:T) UVFS Plate Beamsplitter, Coating: 700-1100 nm, t = 5 mm	1
71	- $\phi 1$ " 30:70 (R:T) UVFS Plate Beamsplitter, Coating: 700 - 1100 nm, t = 5 mm	1
72	- $\phi 1$ " 50:50 UVFS Plate Beamsplitter, Coating: 700 - 1100 nm, t = 5 mm	5
73	$\phi 1$ " Harmonic Beamsplitter, Reflects 1064 nm, Transmits 532 nm	2
74	10 mm Polarizing Beamsplitter Cube, 420 - 680 nm	1
75	10 mm Polarizing Beamsplitter Cube, 620 - 1000 nm	1
76	10 mm Polarizing Beamsplitter Cube, 900 - 1300 nm	1
77	20 mm (0.79") Beamsplitter Cube Adapter for Compact 30 mm Cage Cube	5
78	Compact Clamping 4-Port Prism/Mirror 30 mm Cage Cube, 8-32 Tap	5

Tender document for supply of Laser Physics Laboratory Equipments for Department of Physics, Pondicherry University

79	Box with 10 Absorptive ND Filters, Ø25 mm, SM1 Mounted -Visible	1Set
80	10 Absorptive ND Filters, Ø25 mm, SM1 Mounted –NIR Region 0.1OD, 0.2OD, 0.3OD, 0.4,OD, 0.5OD, 06OD, 1.0OD, 2.0OD, 3.0OD, 6.0OD	10
81	Box to hold 10 Ø25 mm Filters	1
82	Mounted Glan-Thompson Calcite Polarizer, 10 mm x 10 mm Clear Aperture	2
83	- Ø1" Zero-Order Half-Wave Plate, SM1-Threaded Mount, 266 nm	2
84	- Ø1" ZeroOrderHalf-Wave Plate, SM1-Threaded Mount, 355 nm	2
85	- Ø1" Zero-Order Half-Wave Plate, SM1-Threaded Mount, 532 nm	2
86	- Ø1" Zero-Order Half-Wave Plate, SM1-Threaded Mount, 1064 nm	2
87	Ø1/2" Mounted Multi-Order Dual Wavelength Wave Plate 1/2-wave @ 1064 nm & 1/4-wave @ 532 nm, Ø1" Mount	2
88	Ø1" Zero-Order Quarter-Wave Plate, SM1-Threaded Mount, 266 nm	2
89	- Ø1" Zero-Order Quarter-Wave Plate, SM1-Threaded Mount, 355 nm	2
90	- Ø1" Zero-Order Quarter-Wave Plate, SM1-Threaded Mount, 532 nm	2
91	- Ø1" Zero-Order Quarter-Wave Plate, SM1-Threaded Mount, 1064 nm	2
92	50 ohms (M/F)Feed through terminator	5
93	45° Mount Assembly for Ø1" Optics	1
94	45° Mounting Adapter, 8-32 and 1/4"-20 Taps	1
95	Complete Periscope Assembly (without Mirrors)	1
96	Lens Mount for Ø1" Optics, One Retaining Ring Included, 8-32 Tap	20
97	Ø1" Lens Mount with Internal and External SM1 Threads, 8-32 Tap	10
98	Alignment Plate for Ø1" Fixed Optic Mounts	1
99	20-Piece Balldriver and Hex Key Kit with Stand, Imperial	1
100	Spanner Wrench, Graduated, Length = 3.88"	1
101	Rotation Mount for Ø1" Optics, 8-32 Tap	20
102	Stainless Steel (1.035"-40) Threaded Retaining Ring	20
103	Ø1" Motorized Precision Rotation Stage (Imperial) with Servo Motor Driver	2
104	Swivel Base Adapter	10
105	Ø1/2" Universal Post Holder, Spring-Loaded Locking Thumbscrew, L = 1"	20
106	Ø1/2" Universal Post Holder, Spring-Loaded Locking Thumbscrew, L = 3"	20
107	Ø1/2" Universal Post Holder, Spring-Loaded Locking	20

Tender document for supply of Laser Physics Laboratory Equipments for Department of Physics, Pondicherry University

	Thumbscrew, L = 4"	
108	Ø1/2" Universal Post Holder, Spring-Loaded Locking Thumbscrew, L = 6"	20
109	Ø1/2" Optical Post, SS, 8-32 Setscrew, 1/4"-20 Tap, L = 2"	10
110	Ø1/2" Optical Post, SS, 8-32 Setscrew, 1/4"-20 Tap, L = 4"	10
111	Ø1/2" Optical Post, SS, 8-32 Setscrew, 1/4"-20 Tap, L = 6"	10
112	Ø1/2" Optical Post, SS, 8-32 Setscrew, 1/4"-20 Tap, L = 8"	10
113	Ø1/2" Pedestal Post Holder, Spring-Loaded Hex-Locking Thumbscrew, L=6.19"	10
114	Ø1/2" Pedestal Post Holder, Spring-Loaded Hex-Locking Thumbscrew, L=4.19"	10
115	Ø1/2" Pedestal Post Holder, Spring-Loaded Hex-Locking Thumbscrew, L=2.19"	10
116	Short Clamping Fork, 1.24" Counterbored Slot, Universal	10
117	Long Clamping Fork, 1.76" Counterbored Slot, Universal	10
118	1/4"-20 Setscrew and Hardware Kit	1
119	SM1-Threaded Kinematic Mount for Thin Ø1" Optics	10
120	Compact Kinematic Mirror Mount, 8-32 Taps for Post Mounting	20
121	Mirror Holder for Ø1" Optics 2.5 - 6.1 mm Thick	20
122	Ø1" Precision Kinematic Mirror Mount, 3 Adjusters	20
123	Drawer Cabinets Outer Dimensions (L x W x H): 17.00" x 11.00" x 11.00" (431.8 mm x 279.4 mm x 279.4 mm) Twenty-Eight 2.36" x 10.56" x 2.18" (59.9 mm x 268.2 mm x 55.4 mm) Drawers	3
124	Aluminum Breadboard 24" x 36" x 1/2", 1/4"-20 Taps	2
125	Ø2" Integrating Sphere, Si Sensor, 4 ports Detector Wavelength, 350 - 1100 nm, Damage Threshold 2kW/cm ² , 7J/cm ² or better	1
126	UVEhanced Silicon APD: Output Bandwidth DC - 50 MHz Typical Max Responsivity: 25 A/W @ 600 nm (M = 50)	2
127	Ø1" Near IR Hot Mirrors	2
128	Ø1" UV Cold Mirrors	2
129	Ø1" Laser Line Filter, CWL = 1064 ± 0.6 nm, FWHM = 3 ± 0.6 nm	1
130	1" Translation Stage with 1/4"-170 Adjustment Screw, 1/4"-20 Taps	2
131	Ø1" Linear Polarizer: Broadband 400-1100nm Excitation Ratio 10,000:1; Laser damage Threshold: 1 W/cm ² Continuous Block -5 W/cm ² Continuous Pass	5
132	1" XYZ Translation Stage with 1/4"-170 Adjustment Screw, 1/4"-20 Taps	2

Also quote any concessional price available if we purchase any item in pack of 5, 10, 15 etc., In BoQ price has been sought for single item. Based on the price and availability of funds the procurement of individual items and respective quantity may vary.

Annexure 2:

Technical Specifications of Modular Optical Tweezers

- a) Model Number/specific company make if mentioned is for indicative purpose only. Components of equivalent or better than mentioned may be quoted
- b) All the components/items must be supplied by single vendor for want of compatibility
- c) CE Certification Required

S No	Specifications	Qty
1 a	Optical Tweezer Specifications: Trap Force ~10 pN ^b Spot Size 1.1 μm Depth of Focus 1 μm Laser Wavelength 975 nm Max Power at Fiber Output 340 mW	1
1b	Objective Specifications: Type Nikon 100X Immersion Objective Numerical Aperture 1.25 Input Aperture Ø5 mm Working Distance 0.23 mm Wavelength Range 380 - 1100 nm Recommended Cover Glass Thickness 0.17 mm	
1c	Condenser Lens Specifications: Type Nikon 10X Air Condenser Numerical Aperture 0.25 Working Distance 7 mm Wavelength Range 380 - 1100 nm	
2	Back Focal Plane Detection Module for Above Specified Optical Tweezer	1
3	Force Acquisition Module for Above Specified Optical Tweezer	1
4	Fluorescence Module Including Light Source for the Above Specified Optical Tweezer	1
5	100X Olympus Plan Fluorite Oil Immersion Objective, 1.30 NA, 0.20 mm WD	1
6	Microscopy Slide Holder	1
7	Optical Tweezer Kit - Sample Preparation Kit	1

Annexure 3:

Technical Specifications for Boxcar Averager System

- a) Model Number/specific company make if mentioned is for indicative purpose only.
Components of equivalent or better than mentioned may be quoted
- b) All the components/items must be supplied by single vendor for want of compatibility
- c) CE Certification Required

Boxcar Averager System

The whole systems should comprise of

- NIM Bin and Power Supply is suitable for accommodating multichannel boxcar Averager systems
- Analog / Digital Output, Display module:
The display module may contain an analog meter/ digital meter/ bar graph meter which are useful for monitoring the output of the boxcar system
- Signal Channel: Normal or Baseline Sampling
- Coupling AC/DC
- Input Impedance $1\text{ M}\Omega / 50\ \Omega$ (Selectable)
- Input Time Response 2 ns
- Amplitude Response Flat over all gate-widths down to 2 ns
- Max. Sensitivity All gate-widths: 20 mV
- Trigger Source: Internal (upto 40kHz (typical)),
 - External (ECL- Positive edge, 5 ns min pulse width / Negative edge, 20 ns min pulse width and TTL) with Trigger indicator
 - Max Trigger Rate 80 kHz
 - Baseline Input: TTL line
- Trigger Generator Output BNC TTL out on rear panel active in all trigger modes.
- Outputs:
 - Gate Monitor: typically about 0.5V into $50\ \Omega$
 - Trigger: TTL
 - Baseline Output: TTL output line
- Output: Both analog and digital outputs port
- Gate Widths selectable from 100 ps to 150 μs , repetition rates up to 50 kHz
- Gate Delay Input 0 to 10 V DC varies delay by 0.5% to 100% of range setting
- Inter-Sample Correlation less than 0.5% less
- Min. Trigger to Sample Time: (typical) 20 ns
- Standard Gate-width Range 1 ns to 150 μs (Typically)
- Signal Channel: Normal or Baseline Sampling
- Coupling AC/DC
- LED Indicators :Overload and Trigger
- Outputs:
 - Average out and Last sample out should be $\pm 10\text{V FS}$ with $50\ \Omega$ output impedance
- Analog Output Averager: Mode: Linear or Exponential Signal

- Input Impedance $1\text{ M}\Omega / 50\ \Omega$ (Selectable)
- Input Time Response 2 ns
- Gate Scanner is designed to automate waveform recovery by providing the voltages needed to scan the SR250's gate delay. Scan times from 10 ms to 5 minutes can be selected
- Fast Sampler for gated integration with gate widths as short as 100 ps. Four discrete gate widths are provided: 100 ps, 200 ps, 500 ps, and 1000 ps. Output is provided in both analog and digital form. SR245 adds both analog and digital data acquisition capabilities to the SR200 series. Eight analog I/O channels can be configured as inputs or outputs, and two front-panel digital
- Windows compatible software package designed to acquire, display and analyze data taken with the Boxcar system.
- Computer Interface module to communicate with computer over the GPIB/USB or RS-232 interfaces.
Operating Voltage at 230 V AC, 50 Hz
- Max. Input Bandwidth 400 MHz (for $50\ \Omega$)

II.2 Preamplifier:

- 4 Channels with gain of 5 at each stage Bandwidth DC to 350 MHz for amplifying inputs from low level light from Photomultiplier tubes and avalanche photodiode
- Operating Voltage at 230 V AC, 50 Hz

Annexure 4:

Technical Specifications for Gated Photon Counter

- a) Model Number/specific company make if mentioned is for indicative purpose only. Components of equivalent or better than mentioned may be quoted
- b) All the components/items must be supplied by single vendor for want of compatibility
- c) CE Certification Required

Gated Photon Counter

- Signal : Bandwidth DC to 300MHz
 - Input impedance: 50 Ω
- Discriminators Level : Fixed or scanned
- Range: -300mV to +300mV Discriminator Slope Rising or Falling
- Resolution 0.2mV DISC outputs NIM levels into 50 Ω
- Trigger Input Impedance :10k Ω
- Gate Generators: Both gates maybe fixed or scanned
- Insertion delay: 25ns
 - Max Delay: 1sec (typ)
 - Gate Width: Min 5ns Max: 999ms or CW
 - Resolution: 0.1% 1ns minimum
 - Accuracy: 2ns
 - Max Trigger rate-1MHz
 - GATE view Output NIM levels into 50 Ω
- Display Mode Continuous or HOLD
- D/A output
 - Should be proportional to linear or log to A, B, A-B or A+B modes and is updated at the end of each count period. Output ports should be able to be set or Scanned via Compute interface
 - Full Scale: ± 10 VDC
 - Resolution: 12bits 5mV
 - Output Impedance < 1 Ω
- Interfaces: GPIB/USB and RS232
- Operating Voltage: 230VAC 50Hz

And other essential accessories along with it

Annexure 5:

Technical Specifications for Dual Channel Lock-in Amplifier

- a) Model Number/specific company make if mentioned is for indicative purpose only.
Components of equivalent or better than mentioned may be quoted
- b) All the components/items must be supplied by single vendor for want of compatibility
- c) CE Certification Required

Dual Channel Lock-in Amplifier

Signal Channel

Voltage inputs Single-ended or differential

Sensitivity 2 nV to 1 V

Current input 106 or 108 V/A

Input impedance

Voltage input 10 M Ω + 25 pF, AC or DC coupled

Current input 1 k Ω to virtual ground

Gain accuracy ± 1 % (± 0.2 % typ.)

Noise (typ.) 6 nV/ $\sqrt{\text{Hz}}$ at 1 kHz

0.13 pA/ $\sqrt{\text{Hz}}$ at 1 kHz (106 V/A)

0.013 pA/ $\sqrt{\text{Hz}}$ at 100 Hz (108 V/A)

Line filters 50/60 Hz and 100/120 Hz (Q = 5)

CMRR 100 dB at 10 kHz, decreasing by

6 dB/oct above 10 kHz

Dynamic reserve >100 dB (without prefilters)

Reference Channel

Frequency range 0.001 Hz to 102.4 kHz

Reference input TTL or sine (400 mVpp min.)

Input impedance 1 M Ω , 25 pF

Phase resolution 0.001 $^\circ$

Absolute phase error <1 $^\circ$

Relative phase error <0.001 $^\circ$

Orthogonality 90 $^\circ \pm 0.001$ $^\circ$

Phase noise

Int. reference <0.0001 $^\circ$ rms at 1 kHz

Ext. reference 0.005 $^\circ$ rms at 1 kHz, 100 ms, 12 dB/oct

Phase drift <0.01 $^\circ$ / $^\circ\text{C}$ below 10 kHz,

<0.1 $^\circ$ / $^\circ\text{C}$, 10 kHz to 100 kHz

Harmonic detection 2F, 3F, ... nF to 102.4 kHz

Acquisition time (2 cycles + 5 ms) or 40 ms,
whichever is greater

Demodulator

Stability

Digital outputs no drift

Analog outputs <5 ppm/ $^\circ\text{C}$ for all dynamic reserves

Harmonic rejection -90 dB

Offset/Expand ± 100 % offset, expand up to 256 \times

Time constants 10 μs to 30 ks (6, 12, 18, 24 dB/oct rolloff)

Sync. filtering available below 200 Hz

Internal Oscillator

Range 1 mHz to 102.4 kHz

Accuracy 25 ppm + 30 μ Hz

Resolution 0.01 % or 0.1 mHz

(whichever is greater)

Distortion -80 dBc ($f < 10$ kHz)

-70 dBc ($f > 10$ kHz) at 1 Vrms

Amplitude 0.004 Vrms to 5 Vrms into 10 k Ω

(2 mV resolution)

Output impedance 50 Ω

Amplitude accuracy 1 %

Amplitude stability 50 ppm/ $^{\circ}$ C

Outputs Sine and TTL (both can be phase-locked to an external reference)

Sweeps Linear and log

Inputs and Outputs

Interfaces IEEE-488.2, RS-232 and Centronics interfaces standard. All instrument functions can be controlled and read through the interfaces.

X, Y outputs ± 10 V, updated at 256 ksamples/s

CH1 output ± 10 V output of X, R or Trace 1 to 4 CH2 output ± 10 V output of Y, θ or Trace 1 to 4

Aux. A/D inputs 4 BNC inputs, 1 mV res., ± 10 V

Aux. D/A outputs 4 BNC outputs, 1 mV resolution, ± 10 V (fixed or swept amplitude)

Sine out Internal oscillator analog output

TTL out Internal oscillator TTL output

Trigger In TTL signal starts internal oscillator sweep or triggers instrument data taking (rates to 512 Hz).

Remote pre-amp Provides power to the optional SR55X preamps

Displays

Screen format Single or dual display

Displayed quantities Each display shows one trace. Traces are defined as $A \times B / C$ or $A \times B / C^2$ where A, B, C are selected from X, Y,

R, θ , X-noise, Y-noise, R-noise, Aux 1 to 4 or frequency.

Display types Large numeric readout, bar graph, polar plot and strip chart

Data buffer 64k data points. Buffer is configured as a single trace with 64k points, two traces with 32k points each, or

four traces with 16k points each.

Sample rate 0.0625 to 512 Hz, external to 512 Hz

Analysis Functions

Smoothing 5, 9, 17, 21, 25 pt. (Savitsky-Golay)

Curve fitting Linear, exponential or Gaussian

Calculator Arithmetic, trigonometric and

Logarithmic calculations

Statistics Mean and standard deviation

Essential Accessories: Cables, Optical Chopper along-with Controller

Annexure 6:

Technical Specifications for Double Monochromator

- d) Model Number/specific company make if mentioned is for indicative purpose only.
Components of equivalent or better than mentioned may be quoted
- e) All the components/items must be supplied by single vendor for want of compatibility
- f) CE Certification Required

1/4 m Double Monochromator and Imaging Spectrograph

- F number (input) F/4
- Wavelength: 200nm-2000nm (should be able to go scan the entire range with appropriate gratings)
- Gratings :200nm to 1600nm (more than one grating blazed at different wavelength may be used in the spectrograph to cover the range)
- 4 grating turret with automatic grating switching
- Two flat field output ports with automatic port switching
- Stray light: 3×10^{-4} (Deuterium Tungsten Lamp)
- Slit width: Motorized /Manual controllable from 4microns to 2mm
- Slit Height: 20mm
- Resolution: 0.05nm
- Motorized Flip mirror to choose appropriate output wavelength through the exit port
- Communicate Via an external computer using USB, RS-232 or IEEE-488 protocols.

Linear CCD Array

Wavelength 200nm to 1100nm with low light applications to record the spectra and should be compatible with the spectrograph

Appropriate Software to control the instrument and for data acquisition

Operating voltage is 230VAC 50Hz

- Essential Spare: Deuterium Tungsten Lamp Qty2

BIDDER'S WARRANTY

The Registrar, Pondicherry University, Puducherry invited Bid Document for Supply of Sophisticated Instruments at Department of Physics, Pondicherry University and M/s. _____

Thereinafter referred to as "The Bidder" having carefully studied all the bid documents, Specifications, etc. accompanying the tender for supply of the _____ (Name of the Instrument) and desirous to submit the bids as per the Tender Document advertised vide Notification-TenderNo. /..... **dated**.....

DO HEREBY WARRANTY THAT

1. The bidder is familiar with all the requirements of the bid documents.
2. The bidder has investigated the site and satisfied, he regarding the character and scope of the work and local conditions that may affect the supply or it's Performance.
2. The bidder is satisfied that the supply can be performed and completed as required in the contract.
4. The bidder accepts all risk directly or indirectly connected with the performance of the contract.
5. The bidder has had no collusion with other contractors, with any of the men of Pondicherry University, Puducherry, or with any other person in preparation of the bid.
6. The bidder has not been influenced by any statement or promise of the Officials of Pondicherry University, Puducherry but only by the bid documents.
7. The bidder is financially solvent.
8. The bidder is experienced and competent to perform the contract to the satisfaction of the Co-ordinator, Central Instrumentation Facility, Pondicherry University, Puducherry.
9. The statements submitted with the bid are true.
10. The contractor is familiar with all general and special laws, acts, ordinances, rules and regulations of the Municipal, District, State and Central Government that may affect the work, its performance or personnel employed therein.
11. All the terms & conditions of the Supply Order will bind the bidder once his quote is accepted and supply order issued.

Signature of the Bidder

ANNEXURE - II

BANK GUARANTEE

Pondicherry University
Bharat Ratana Dr. B R Ambedkar Administrative Building
R Venkataraman Nagar
Puducherry 605 014

This guarantee made on this _____ day of _____ 201_ by _____ Bank having its Registered Office at _____ and one of its branches at _____ (hereinafter referred to as “the Guarantor” which expression shall, unless it be repugnant to the subject, meaning or context thereof, be deemed to mean and include its successors and assigns) in favour of the Pondicherry University, Puducherry 605 014 represented by its Registrar, having his office at R. Venkataraman Nagar, Kalapet hereinafter referred to as the “University” which expression shall include his successors in office for an amount not exceeding Rs. _____ (Rupees _____ only) at the request of M/s. _____ (more fully described hereunder)

2. Whereas the University has placed work Order No: PU/ _____ dated _____ for _____ with M/s. _____ having its office at _____ and hereinafter referred to as the “Contractor” which expression shall include their successors and assigns.

3. And whereas the Contractor has accepted and agreed to execute the work as per the work order as per undertaking / agreement dated _____ within the time stipulated and in the manner specified therein.

4. And whereas the University has called upon the Contractor to furnish Bank Guarantee for the sum of Rs. _____ (Rupees _____ only) for fulfilment of the said work as specified in the work order and as agreed to by the Contractor.

5. And whereas the Contractor has requested the Guarantor herein to furnish an irrevocable and unconditional Bank Guarantee in favour of the University for an amount of Rs. _____ as guarantee towards execution of the work as agreed to by the contractor to the University.

6. Now, therefore, we _____ Bank, the Guarantor herein, do hereby irrevocably and unconditionally Guarantee the payment to the University the sum not exceeding Rs. _____ (Rupees _____ only) in the event of any breach, failure, neglect or inability on the part of the Contractor in the execution of the said work, on demand without reference of the matter to the Contractor and without any prior consent of the Contractor, at all times throughout the period of execution of the work, without demur, cavil or argument or delay.

7. The Guarantor agrees and undertakes that the decision of the University as to whether the contractor has committed any breach of the obligation with respect to the work to be executed, and the quantum of amount therefore payable by the Contractor to the

Tender document for supply of Laser Physics Laboratory Equipments for Department of Physics, Pondicherry University

University in that regard, shall be final, binding and conclusive as against the Guarantor and the Guarantor shall make payment accordingly, on demand by the University.

8. The Guarantor further agrees and undertakes to pay to the University the amount demanded by the University irrespective of and notwithstanding any dispute raised by the Contractor in any suit or proceeding before any judicial forum relating to the Contracted work and the Guarantor's liability under this Guarantee shall be absolute and unequivocal.

9. This Guarantee is issued subject to the condition that the liability of this Guarantor under this guarantee is limited to the maximum of Rs. _____ (Rupees _____ only) and the guarantee shall remain in full force up to _____ and cannot be invoked otherwise than by a written demand or claim by the University for the payment of the said amount by the Guarantor on or before _____ or any extended date as decided by the University.

10. This University shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the contracted work or to extend time for performance of the work by the Contractor. Any change to the contracted work shall not in any way release the Bank (Guarantor) from liability under this Guarantee and we waive notice of any such change. The University shall have full liberty to forbear or enforce any of the terms and conditions of the contracted work.

11. This Guarantee shall not be affected by any legal limitation, disability or other circumstances relating to the Contractor or the Guarantor.

12. This Guarantee shall be valid for the period upto _____ and shall extend further and beyond _____ for such period as determined by the University.

13. The Guarantor undertakes not to revoke this guarantee except with the previous consent of the University in writing.

14. Notwithstanding anything contained herein:

- Our liability under this guarantee shall be limited to Rs. _____ (Rupees _____ only)
- This guarantee shall be valid upto _____ and for such further period as determined by the University for fulfilment of the contract.
- We are liable to pay the guaranteed amount or any part thereof under this Bank Guarantee only and only if you serve upon us a written claim or demand on or before _____ or such extended period / date.

In witness whereof, this Guarantee has been executed by _____ for an on behalf of the Bank (Guarantor) on the day, month and year first above written.

SIGNATURE AND SEAL

NAME OF THE BANK (GUARANTOR):

ADDRESS: