Tender notification for the procurement of a **one-box Ti-Sapphire femtosecond amplified laser** system for thermal transport spectroscopy in the Mechanical Engineering department at IISc Bangalore

Deadline for submission of tenders: August 19th, 2020, 5 pm Indian Standard Time

August 3rd 2020

Dear Sir/Madam,

Kindly send the lowest quotation for a **one-box femtosecond amplified laser system** with the following specifications and terms & conditions on C.I.P. Bangalore basis. The tender should be submitted in two separate sealed envelopes - one of them containing the technical bid and the other containing the commercial (or financial) bid. Please ensure that both of these sealed envelopes reach us, duly signed, by August 19th 2020 before 5 pm, Indian Standard Time, delivered either by post or in-person.

Detailed specifications requirement of a one-box Ti-Sapphire Femtosecond Amplified laser system are provided below:

Please enclose a compliance certificate along with the technical bid.

(a). Amplifier requirements:

Central wavelength	:	~800 nm
Pulse width (FWHM)	:	< 120 fs
Repetition rate	:	1 kHz
Pulse energy	:	> 7 mJ @ 1 kHz rep. rate
Pre-pulse contrast ratio	:	> 1000:1
Post-pulse contrast ratio	:	> 100:1
Spatial mode	:	TEM_{00}
Polarization	:	Linear, Horizontal
Beam quality, M^2	:	$M^2 < 1.25$
Beam pointing stability	:	< 10 micro-rad
Power stability (rms) (24 hours)	:	< 0.5 rms

(b). Oscillator requirements:

The oscillator should be an automated ultrashort mode-locked Ti:Sapphire oscillator with an integrated continuous wave pump, and should have the following specifications:

Central wavelength	:	~800 nm
Spectral bandwidth	:	~60-75 nm
Total power output	:	~450 mW at the highest bandwidth

Power output (simultaneous with & independent of the amplifier output, without any compromise to the specifications of the amplifier output as described above)	:	>= 200 mW
Repetition rate	:	~80-84 MHz
Divergence	:	< 1m-rad
RMS noise	:	< 0.05%
Polarization	:	Linear, Horizontal
Beam quality, M^2	:	$M^2 < 1.3$
Pulse compression capability	:	Oscillator should have enough bandwidth to achieve < 22 fs (FWHM) pulses when used with an external compressor.
Power stability	:	+/- 0.5 %

(c). Pump laser requirements

Output wavelength	:	~527 nm
Repetition rate	:	1 kHz
Average power	:	> 35 W @ 1 kHz
Energy stability	:	< 0.5% RMS

Other essential technical specifications and requirements:

1. The pump laser, the seed laser and the regenerative amplifier should be in a **one-box** set up, and all three of the above should be sourced from a single factory/principal/manufacturing company.
2. **Necessary chillers** for the safe and reliable operation of the one-box femtosecond amplifier laser system must be included in the tender offer. The **additional coolant, tubings, connectors** etc. required for complete functioning of the chillers, should be included in the quotation.
3. All required **laptops, softwares, cables, specific extension boards and other accessories** necessary for the safe and reliable operation of the amplifier, oscillator and the pump lasers should be provided and included in the tender offer. **No further accessories (other than the optical table, UPS and power outlets) should be required** for safe and reliable operation of the entire one-box femtosecond amplified laser system.
4. The system should be operable with **220-240 VAC, 50 Hz** power supply (Indian electric power outlet conditions)
5. A **USB spectrometer, auto-correlator and a power meter** used to measure the pump, oscillator and amplifier output beam characteristics should be included in the quote. An **IR viewer** should also be included in the quote.

6. An option of obtaining a **stand-alone, independent output from the pump laser (i.e., item (c) above)**, when the amplifier is NOT switched on, must be included, if available. This option should be included only if there will be no compromise on the functioning, specifications and requirements of the oscillator and amplifier as described above.

Terms and conditions:

1. Only **standard products, whose details and specifications can be accessed on the vendor or the principal's website** before August 3rd 2020 should be quoted.
2. During installation of the product, the following specifications should be demonstrated on-site (at IISc Mechanical Engineering department, Bangalore, India) for the equipment at a minimum:
    (1) output powers of the oscillator and the amplifier
    (2) the simultaneous power output of ~200 mW from the oscillator (i.e., simultaneously with the amplifier being switched ON)
    (3) option of pump laser as a stand-alone option when the amplifier is NOT used, if available
    (4) pulse width of the amplifier
    (5) bandwidths of the amplifier and the oscillator
    (6) pump power output
    (7) wavelength of oscillator, pump and amplifier

All necessary equipments/devices required to perform the demonstration on-site should be either included in the tender offer or brought by the technical installation engineer/personnel during installation.
3. **1-year company/factory/principal warranty**, from the date of installation, with an optional, separate quotation for the (1) 2nd year and (2) 2nd + 3rd year warranties, from the date of installation, including all detailed terms and conditions, should be provided.
4. An optional quote for **spares required for 2 years** of smooth and reliable operation of the equipment must be enclosed with the quotation.
5. The cost of shipping up to **CIP Bangalore** should be included. IISc will help with customs clearance at Bangalore Airport.
6. The vendor should have an **adequate network of qualified technical service engineers** for the equipment, based in India. **Proof of training certificates of the local technical service engineer(s)** after getting trained at the manufacturing company/factory/principal should be enclosed with the tender offer.
7. The technical installation engineer/personnel should provide one-week of on-site training for the safe and reliable operation of the laser, during the installation. **The technical installation personnel/engineer, who will perform the installation, must possess a proof of training certificate from the manufacturing company/factory/principal, which should be submitted along with the tender offer.**
8. The vendor should have supplied **at least five units of similar femtosecond amplifier laser systems in India within the past three years**. A list of customers to whom these

femtosecond amplifier laser systems have been supplied, along with their contact details must be enclosed with the tender offer.

9. The technical bid should contain an authorization letter/certificate from the principal company. It should also contain detailed technical specifications of the equipment along with the commercial terms and conditions, terms and conditions for the delivery and installation of the equipment, proof of training certificate for the technical service/maintenance engineers, and a compliance certificate with a tabulated Yes/No answers towards all of the specifications and requirements listed above in this document. The technical bid should NOT include any pricing information.

10. Payment will be through **letter of credit (LC)**, with 80% of the payment released upon receipt of all dispatched documents and the remaining 20% released after successful installation and demonstration of specifications, options and performance of the equipment.

11. The sealed envelopes containing (separately) the technical bid and commercial/financial bid, duly signed, should reach the following address before **August 19th 2020, 5 pm, Indian Standard Time**:

The Chair,
Department of Mechanical Engineering,
(Attn: Dr. Navaneetha Krishnan Ravichandran)
Indian Institute of Science,
Bangalore 560012, India