

Call for Expression of Interest (EoI)

For the Supply of optical components (collimator & camera unit) for Faint Object Spectrograph and Camera (FOSC) for ARIES 3.6m optical telescope at Devasthal, India

1. Background

(i) Aryabhata Research Institute of Observational Sciences (ARIES) is installing a 3.6 m optical telescope at the site of Devasthal (latitude: 29° 23' North; longitude: 79° 41' East, altitude: 2450 m) in India. To achieve the scientific goals of the telescope, we will require an efficient backend instrument which can be used for both imaging and medium to low resolution spectroscopy in the wavelength range 350 nm to 1000 nm.

(ii) Proposals are invited from well reputed and experienced vendors for the manufacturing of collimator lens assembly and camera lens assembly for the FOSC instrument.

(iii) Expression of interest together with the profile of the company including its past experience in the design and fabrication of astronomical or related instruments may be sent to “The Director, Aryabhata Research Institute of observational sciences (ARIES), Manora Peak, Nainital – 263 129 India” or by e-mail to wg3@aries.res.in before September 15, 2011 as per format attached here as Section A and Section B. The e-mail submission should be followed by an Fax of Section A/B to +91 5942 233439.

Note: This document is also available on <http://www.aries.res.in/~ADFOSC/EoI.doc>

2. Scope of works for Vendor:

This EoI is for supply of collimator and camera assembly in barrels as per design indicated in Fig. 1. The work to be carried out in fabrication, lens bonding, assembly and testing of the collimator and camera lens assembly involves:

1. Verification of the optical design provided by ARIES and fine tuning for the actual melt after the procurement of glasses.
2. Design and fabrication of mechanical assemblies.
3. Review of fabricable optical and mechanical designs for components.
4. Procurement of optical components.
5. Fabrication of the components.

6. Anti-reflection coating on the optical components.
7. Black painting of the outer surfaces of the lens barrel and inner surfaces of the optical component cells.
8. Assembly of the lens elements in the lens barrel.
9. Precision alignment of the lens elements as per specifications.
10. Bonding of optical components to their cells using appropriate adhesive.
11. Testing at vendor premises/third party to ensure compliance of the specifications, in terms of optical image quality achieved.
12. Preparing reports after the tests and provide the same to buyers.
13. Review of the results obtained.
14. Dispatch of collimator and camera assemblies to buyer as per specifications.

The optical and mechanical fabrication, bonding, alignment and testing should be carried out to the best of engineering practices. The vendor will be responsible for the above design and fabrication of lens assemblies which will be reviewed by ARIES.

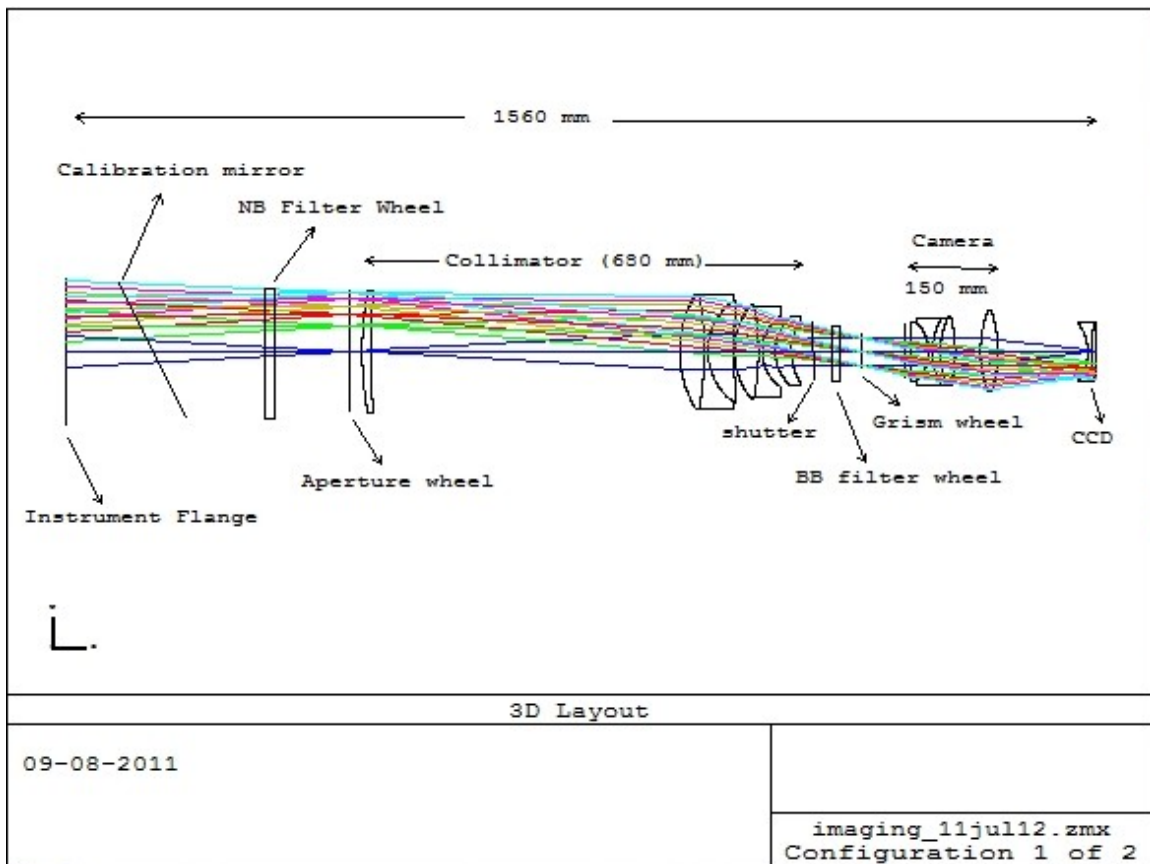


Fig. 1: Ray diagram for FOOSC instrument. Total length from instrument flange to CCD detector is 1560 mm.

2.1. Special Requirements:

2.1.1 Anti-reflection coating on the optical surfaces:

All refractive optical components will have AR coating and the instrument should be free from ghost images and central brightening effects. The vendor is responsible for design and qualification of the AR coatings according to the relevant MIL/ISO standards. After qualification to MIL standards, deposition of anti-reflection coatings on all the optical surfaces is to be carried out. These coatings should minimize the surface reflection (in the spectral range 350 – 1000 nm) to less than 0.75 percent on all surfaces. Design reflectance curves, and measurements on witness samples are to be provided to ARIES.

2.1.2 UV transmission:

All glasses have been selected from Ohara catalogue. These glasses are good in UV region and having transmission $T_{330 \text{ nm}}$ as 70-90 %.

3. Responsibilities of ARIES

3.1 Optical design:

ARIES will provide the complete optical design of the optical elements (collimator and camera assembly). Designs will be send to selected vendor based on the evaluation of the expression of interest. The design will be provided following an undertaking of non-disclosure to any third party and no use other than the one specified in this proposal and contract thereafter.

In the design collimator has seven elements (two single, one doublet and one quadruplet lenses) and camera has five elements (one single and one quadruplet). Last element of collimator is even aspheric. All glasses are currently taken from Ohara catalogue. Length of the collimator and camera lens assembly is 680 mm and 150 mm respectively. Parameter range of lenses used in the design and tolerances are listed in Table 1 and 2 respectively. These values are only indicative.

Table 1: Parameter range of the lenses used in the design of collimator and camera.

Glass materials	S-FSL5, S-FPL51, PBL6Y, PBM8Y, CAF2, BAL15Y,PBM18Y,Silica
Thickness range	8 – 40 mm
Radius of curvature range	50 – 3780 mm
Semi-diameter	25 – 105 mm

* Detailed design giving specifications of each element and assemblies will be provided to qualified vendor, only.

Table 2. Tolerances (Indicative)

Radius of curvature	0.05%
Thickness	10 μm
Surface decenter	10 μm
Surface tilt	0.001 deg
Surface irregularity	0.25 fringe
Element decenter	10 μm
Element tilt	0.002 deg
Refractive index	0.00002
Abbe No.	0.25%

4. Eligibility criteria of vendor:

The vendor must have understanding, experience and infrastructure for the design and fabrication of precision optical elements/instrument. A profile of the company and its past experience in the design and development of related instruments should be enclosed with the EoI. The vendor must have design/built some optical components requiring similar precision & tolerance as indicated in this document.

5. Expected time schedule:

Expected total time for the supply of items is 12 months from the date of award of contract. The expected date of award of the contract will be before Dec. 31, 2011.

6. Selection procedure of vendor:

Stage	Descriptions	Indicative Dates
1	Vendor selection through the EoI	30/09/11
2	Designs will be send to qualified vendor in stage 1	05/10/11
3	Financial and technical bids invited and single vendor will be identified.	05/11/11
4	CDR completed with the selected vendor	30/11/11
5	Award of contract	31/12/11

SECTION – A

TO BE FILLED IN BY INDIAN BIDDERS AND RETURNED ALONG WITH THE EOI FOR THE SUPPLY OF COLLIMATOR AND CAMERA ASSEMBLY

1.	NAME OF THE UNIT WITH FULL ADDRESS	
	FAX NO. CONTACT PERSON: PHONE NO: E-MAIL:	
	WEBSITE:	
2.	REGD. OFFICE/CORPORATE OFFICE ADDRESS: PHONE: FAX: E-MAIL: CONTACT PERSON:	
3	NATURE OF BUSINESS	
4	DATE OF COMMENCEMENT OF BUSINESS	
5	CONSTRUCTION OF COMPANY (INCORPORATED AS LTD., PVT LTD./PROPRIETARY)	
6	NAME OF DIRECTORS/OWNERS WITH ADDRESS, TENURE AND THEIR BUSINESS ASSOCIATION	
7	NAME OF THE CHIEF EXECUTIVE OF THE ORGANISATION AND EXPERIENCE	
8	FOREIGN/INDIAN COLLABORATION, INCLUDING CONSULTANCY CONTRACTS, IF ANY	
9	INFRASTRUCTURE A) MANPOWER STRENGTH: TECHNICAL NON TECHNICAL B) DETAILS OF MAJOR PRODUCTION FACILITIES: C) DETAILS OF QUALITY ASSURANCE FACILITY: D) ARE THESE FACILITIES SUFFICIENT TO MEET THE MANUFACTURING AND TESTING INSPECTION NEEDS OF THE QUOTED SYSTEM:	OFFICERS: WORKMAN:
10	ISO CERTIFICATION. IF, YES, PROVIDE INFORMATION	
11	ARE YOU ORIGINALLY EQUIPMENT MANUFACTURER (OEM) OF THE QUOTED INSTRUMENT.	
12	IS YOUR ORGANISATION REGISTERED WITH DGS&D/NSIC/SSI ?	

a. Please attach additional sheets if necessary.

DATE:

SIGNATURE OF AUTHORIZED OFFICIAL WITH SEAL

Send by Fax to +91 5942 233439

SECTION – B

TO BE FILLED IN BY FOREIGN BIDDERS AND RETURNED ALONG WITH THE EoIFOR THE SUPPLY OF COLLIMATOR AND CAMERA ASSEMBLY

1.	NAME OF THE UNIT WITH FULL ADDRESS	
	FAX NO. CONTACT PERSON: PHONE NO: E-MAIL:	
	WEBSITE:	
2.	ANY OFFICES/STAFF ESTABLISHED IN INDIA IF YES, PROVIDE ADDRESS, TELEPHONE NO., FAX NO., CHIEF EXECUTIVE'S NAME,NATURE OF ACTIVITIES HANDLED DETAILS OF STAFF POSITIONED.	
3.	NATURE OF BUSINESS	
4.	DATE OF COMMENCEMENT OF BUSINESS	
5.	CONSTRUCTION OF COMPANY (INCORPORATED AS PER LAWS OF THE COUNTRY, GOVT. COMPANY, PRIVATE OWNERSHIP, FAMILY BUSINESS).	
6.	NAME OF DIRECTORS/OWNERS WITH ADDRESS, TENURE OTHER BUSINESS ASSOCIATION	
7.	NAME OF THE CHIEF EXECUTIVE OF THE ORGANISATION AND EXPERIENCE	
8.	COLLABORATION, INCLUDING CONSULTANCY CONTRACTS, IF ANY	
9.	INFRASTRUCTURE A) MANPOWER STRENGTH: TECHNICAL NON TECHNICAL B) DETAILS OF MAJOR PRODUCTION FACILITIES: C) DETAILS OF QUALITY ASSURANCE FACILITY: D) ARE THESE FACILITIES SUFFICIENT TO MEET THE MANUFACTURING AND TESTING INSPECTION NEEDS OF THE QUOTED INSTRUMENT:	OFFICERS: WORKMAN:
10.	ISO CERTIFICATION. IF, YES, PROVIDE DETAILS THEREOF	
11.	ARE YOU ORIGINALLY EQUIPMENT MANUFACTURER(OEM) OF THE QUOTED INSTRUMENT.	

a) Please attach additional sheets if necessary.

DATE:

SIGNATURE OF AUTHORISED OFFICIAL WITH SEAL

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