

**INDIAN ASSOCIATION FOR THE CULTIVATION OF SCIENCE  
JADAVPUR, KOLKATA-700032**

**Global Tender No : IACS/SSP/AJP/DIT/10/12-13**

Sealed tender are invited in two-bid system (**Technical Bid & Financial Bid**) for “**Glove Box fitted with Vacuum Deposition Chamber, Spin Coating Unit, along with a Solar Simulator**” with the following specifications:

1. Two glove boxes connected by a T shaped common antechamber having a dimension of at least 350 mm diameter with sliding tray system for sample transfer from outside and between the glove boxes.
  - Each glove box should have a dimension of at least  $1500 \times 700 \times 900 \text{ mm}^3$  (L  $\times$  D  $\times$  H) with O<sub>2</sub> & H<sub>2</sub>O purifier. Desirable purity to be achieved for H<sub>2</sub>O, O<sub>2</sub> is 1 ppm or less. The glove boxes should be fitted with dust filter (0.3 micron or below).
  - The height of the working base from the floor should be around 900 mm.
  - Each glove box should have three gloves.
  - Each glove box should have one mini-antechamber (diameter 150 mm or more) with sliding tray for sample transfer.
  - The glove box should be equipped with auto regeneration controller.
  - Each glove box should be fitted with light for suitable illumination
  - Each glove box should have three shelves to store different products.
  - Left glove box should contain proper feed through for the BNC cables connected between probe head and measuring meters.
  - Both glove boxes should contain waterproof foot paddle to induce both negative and positive pressures.
  - Required spares and consumables: 4 pairs of gloves.
2. In the glove box positioned on the right side, one spin-coater should be placed below the glove box so that the chuck of the coater and the operating panel remained on the floor of the glove box. The spin-coater should achieve a speed of at least 7000 rpm within 5 sec.
  - Required diameter of the chuck: 5 mm, 10 mm, 25 mm, and 50 mm in diameter.
  - There should also be a oil-free vacuum pump with the spin coater unit with appropriate pumping speed to hold a substrate of dimension up to 6 cm  $\times$  6 cm
  - The spin-coating system should be equipped with an auto cartridge system.
3. In the glove box positioned on the left side, one solar simulator should be placed below the glove box so that light comes from the floor of the glove box. A quartz window (8 cm  $\times$  8 cm) should be placed on the floor of the glove box through which light would enter. The solar simulator should provide at least 1.2 Sun intensity (AM 1.5) on the surface of the quartz plate. Beam size of the solar

simulator should be at least 50 mm × 50 mm. Intensity of light should uniform over the area. There should be an attenuator system to vary the intensity from 0.1 to 1.2 Sun.

4. The solar simulator should be equipped with integrated EQE measurement (in range 250 nm – 2000 nm) setup.
5. On the extreme left side of the glove box, there should be a box-type thermal coating unit having an inner dimension of at least 350 × 350 × 500 mm<sup>3</sup> (L× D × H). The coating unit should be fitted with a Turbo Molecular Pump (TMP) with a pumping speed of at least 200 liter/s fitted with pirani and penning gauge-heads and meters. The TMP should be backed by a suitable oil-free rotary pump (sealing kit for 3 years to be provided). The chamber of box-type coating unit should achieve a vacuum of better than 10<sup>-6</sup> mbar. The back-wall of the chamber should be removable. The chamber of the coating unit should be fitted with deposition sources, 2 for filaments baskets (200 A) and 2 for boats (200 A). There should be a facility of co-deposition from any three baskets/boats as well as from a single basket/boat for all the sources.
  - Programmable control of deposition process.
  - One substrate holder having dimensions 10 cm × 10 cm, having a depth of 3 mm in one side so that we can put the substrates and will be well-fitted. There will be a mechanical mask for the substrates. Required four masks (removable) with opening type will be circular having area 4 mm<sup>2</sup>, 10 mm<sup>2</sup>, 15 mm<sup>2</sup>, 20 mm<sup>2</sup> with a periodicity of 3 mm gap. One substrate shutter, one source shutter both should be operated from outside. Desirable height (changeable) of the substrate holder with mask from the filament is 400 mm – 500 mm.
  - Substrate temperature should be controllable from 0 to 100 °C.
  - Appropriate thickness monitor & quartz crystal with water supply connection to measure the thickness. Rate display resolution should be at least 0.01 Å/sec and thickness display resolution should be 0.001 KÅ.
  - Thickness monitor should measure thickness in the 0 – 500 nm or above. The thickness monitor should cover metal-density in the 0.5 – 25 range, acoustics impedance range of 0.2-30, tooling factor (%) of 1-100.
  - Chiller with pumping system is available. Suitable pipelines to be provided.
  - Spares: Quartz crystals for thickness measurements, filaments, & boats (10 pieces each).
6. A feed-through is required to place a microscope eyepiece.
7. Nitrogen regulator (Two Stage) with matching pipelines.
8. Warranty: 3 years including charcoal, catalysts, and dust filter for maintaining H<sub>2</sub>O, O<sub>2</sub> level of 1 ppm or less.

**Pre-bid Meeting:** August 22 (Wednesday), 2012 at 4:00 pm in the S. N. Bose Hall of IACS. Prospective bidders may attend the meeting to clarify technical specification, if any.

**Last date of submission** of sealed tender documents (marked separately as “Technical Bid” and “Financial Bid”) to Prof. A.J.Pal, Dept. of Solid State Physics, IACS, Jadavpur, Kolkata 700032, email: [sspajp@iacs.res.in](mailto:sspajp@iacs.res.in): August 31, 2012 (Friday), 4:00 pm.

At any time prior to the bid due date, IACS may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective bidder during pre-bid meeting, modify the bidding documents. The amendment(s) will be notified on the Institute website. Prospective bidders are advised to occasionally visit the website for any amendment.

**Opening of Technical Bids:** September 4, 2012 (Tuesday), 4:00 pm in the S. N. Bose Hall of IACS.

**Opening of Price-Bids:** The Price Bids of the bidders qualifying the technical bid will be opened. Date, time and venue will be informed to the successful bidders.

-----  
**REGISTRAR**