

**INDIAN INSTITUTE OF TECHNOLOGY  
DEPARTMENT OF CIVIL ENGINEERING**

**Enquiry letter for purchase of HTDMA**

**Sub: Quotation for supply, installation, commissioning and training of Hygroscopic Tandem Differential Mobility Analyser (HTDMA)**

**Reference: IITK/CE/2015/1002**

**Dated: May 25, 2015**

Sir / Madam,

With reference to the subject mentioned above, you are invited to submit the quotation in a sealed cover. Configuration/Specifications are given below:

**Specifications of Hygroscopic Tandem Differential Mobility Analyser (HTDMA):**

**1. Principle of operation:** The HTDMA consists of two Differential Mobility Analysers (DMA), a particle counter (CPC), and various pumps and humidity control devices etc. A polydisperse aerosol distribution at ambient relative humidity enters the system, and is dried as it enters DMA-1 (RH < 10-20%). DMA-1 is used to select a monodisperse distribution of a given size. Aerosol exiting DMA-1 is humidified and then enters DMA-2 (which also has humidified sheath air). DMA-2 coupled with the particle counter is used to measure the size distribution of the humidified monodisperse aerosol, hence providing a growth factor spectrum.

<b>2. Aerosol Charge Neutralizers-(2 No)</b>	Non-radioactive, Bipolar diffusion charger, balanced levels of +ve and -ve ions,
<b>3. Electrostatic Classifier-(2 No)</b>	upto at least 5 to 1000 nm, up to 150 channels,
Scan time	<10 second
Concentration	$10^7$ particles/cm <sup>3</sup> or higher
Sizing accuracy	Better than 1% at 100 nm with 10:1 sheath air flow to aerosol air flow ratio.
Resolution	≤3% at 100 nm for 10:1 sheath/aerosol flow ratio.
Aerosol temperature range	10 to 40°C
Pressure	70 to 125 kPa.
Humidity	0 to 90%, non-condensing.
<b>4. Differential Mobility Analyser-(2 No)</b>	
Aerosol flow rate	0.1-1.0 L/min, User Selected
Sheath Air flow rate	1.0-10.0 L/min, User Selected
Size range	8 nm to 1150 nm, User Selected.

DMA voltage range 10 to 10,000 VDC, negative (optional: Switchable, positive and negative).

5. Diffusion dryer (1 No) Flow rate 1-5 LPM.

6. Aerosol humidifier(1 No)

%RH range ~ 40 to 100% RH

Humidity control should be able to provide controlled humidity in aerosol flow and sheath flow of the DMA

Software humidity at diffusion dryer and humidifier should be recorded and presented with the aerosol data.

7. Condensation Particle counter (1 No)

Working Principle Laminar continuous flow with single particle detection

Particle Diameter Range 5 nm to 2  $\mu$ m

Concentration Range 0-  $3 \times 10^4$  particles/cm<sup>3</sup> or better; (for single particle counting with coincidence correction)

Concentration Accuracy  $\pm 10\%$

**The quotation should have the following details:**

1. Cost of the item and accessories and installation charges, if any
2. Technical specifications in detail
3. Warranty period
4. Educational discount considering end use for research and teaching
5. Payment terms
6. Proprietary Certificate, if applicable
7. Comprehensive AMC prices should be quoted separately
8. Any other relevant details

**Terms and condition:-**

1. Sealed Quotation must reach the undersigned on or before June 6, 2015. **Date extended till June 13, 2015.**
2. Prices should be in USD and CIF Delhi.
3. Our Institute is partially exempted from custom duty.
4. The final selection will be made based on weights given to technical merit and pricing as 70% and 30% each, respectively.

Dr. Sachchida Nand Tripathi  
Professor  
Department of Civil Engineering  
Indian Institute of Technology  
Kanpur – 208016

Tel. 0512 – 2597845  
Fax No. 0512-2597395  
E-mail: snt@iitk.ac.in

