

Details of CARE Facility

Name of CARE facility: Malvern's Spraytec Particle Analyzer

Location: Combustion Laboratory (back side of Propulsion Lab, Aerospace Engg.)

Total cost of equipment/facility: 24 Lakhs

Year of CARE funding: 2003-04 and Operational since, **June, 2004**

Support provided by CARE: 20 Lakhs (rest support from AE Department)

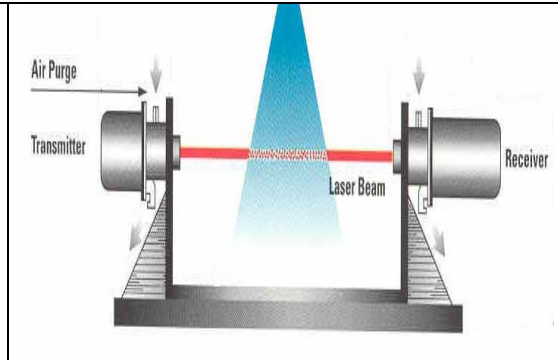
Name of Principal Investigator: Dr. D. P. Mishra (mishra@iitk.ac.in; Tel: 7125/6086)

Participating departments: AE, MME, MSP, CE

Brief description and capability of CARE facility:

(Please add a photograph of the facility)

LSP works on the principle of Dynamic focusing of a laser beam and evaluation of the objective position. In particular, IR light (wavelength 780 nm) through guided objective is focused on the specimen surface. The reflected light is subsequently assessed by the objective and directed to a focus detector. The moving position of the objective is converted to an electrical signal via a position transducer. The profile spacing position of the specimen in the Y-axis is controlled by a timed motor and the acquired signal is processed by commercial software.



Technical Specifications:

Laser probe spot radius: 2 μ m

Reflectivity of sample: should be between 4 % and 95 %

Working distance: 10mm

Spatial resolution: 0.1 μ m (approx)

Vertical resolution: 5 nm (depending on measuring range, below 0.1 μ m depth not tested till now)

Vertical measuring range: $\pm 250 \mu$ m or $\pm 25 \mu$ m

Scanning speed: 0.1 to 0.5 mm/sec for different cut-off / traversing lengths

Maximum area to be scanned: 56 X 56 mm² or 120 X 56 mm²

Utilization of the facility:

Dr. D. P, Mishra (AE)

Dr. A. Kushari (AE)

Dr. D. C. Aggarwal (MSP)

Dr. S Sangal (MME)

Dr. P. K. Mohapatra (CE)

Link to the website for the CARE facility, if any:

<http://www.iitk.ac.in/aero/dpm/index.htm>