LALP-07-004 Winter 2007

Equipped with versatility and functionality in mind, the MPA-11 Clean Room User Facility features a variety of tools, including an e-beam thin film deposition system.

MPA-11 Clean Room User Facility

The MPA-11 Clean Room User Facility supports the Materials Physics and Applications Division's mission to research materials and lay the foundation for new technologies.

A class 100/10,000 facility, the clean room features a Class 100 room with yellow lighting for processing ultraviolet sensitive photoresists and a Class 10,000 room for vacuum depositions and etches.

Designed and equipped with versatility and functionality in mind, the 2,000-square-foot clean room features a variety of characterization tools designed to accommodate diverse research interests.

Also available are many standard chemicals and deposition materials. Clean room capabilities include both optical and soft lithography; thin film deposition; processing and characterization; wet and dry chemical etching; rapid thermal processing; variable angle spectroscopic ellipsometry; profilometry; ultrasonic wire-bonding; and parallel-gap welding.

The user facility includes safety and clean room gear, lockers, and clean sample storage. Technical assistance is available for mask design, processing, and device packaging.

Located in Los Alamos National Laboratory's Technical Area 3, SM-40, which is in the open security environment, the facility offers easy user access. Required training consists of three courses and can usually be completed within a week. Scheduling can be booked in short- or long-term increments. Individual and group rates are available.

Clean room equipment

Thin film deposition and material growth
Perkin-Elmer 2400-6J RF sputter system, three target
E-beam evaporator, four hearth

Wet etching
Six wet bench stations with laminar flow hoods

Photolithography
Karl Suss MJB3 contact aligner
Headway programmable photoresist spinner
Headway variable speed photoresist spinner

Dry etching
Oxford Plasmalab 80 plus RIE System configured for general dry etch processes
NRC ion mill
Plasma Preen II oxygen photoresist plasma etcher
Technics PE-II parallel plate plasma etcher with heater

Analytical equipment
Dektak VIII 3D surface profilometer
SOPRA variable angle spectroscopic ellipsometer

Furnaces
Lindburg tube furnace
TFS Heatpulse 610 rapid thermal processor

Sample preparation
120 °C Fairweather hot plate
90 °C Fairweather hot plate
Sybron/Thermolyne hot plate oven
Probe station
Dicing saw (tech shop training, authorization required) (outside clean room)
Blue M bake oven
-20C cold plate

Assembly and packing
Hybond wire bonder (outside clean room)
Unitek parallel gap welder

Microscopes
Olympus high resolution microscope
Wild trinocular head microscope with digital camera

Other analytical equipment
Siemens X-ray diffractometer
Philips XL20 SEM with EDAX (outside clean room)
SpecTrace QuanX X-ray fluorescence spectrometer (outside clean room)

Contact

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The Class 100 room features yellow lighting for processing ultraviolet sensitive photoresists. The contact mask aligner accommodates a variety of sample sizes.

MPA-11 Clean Room User Facility

Fee information

An individual user pass allows an individual from a Laboratory group access to the facility and equipment. FY07 rates, which include taxes, are as follows:

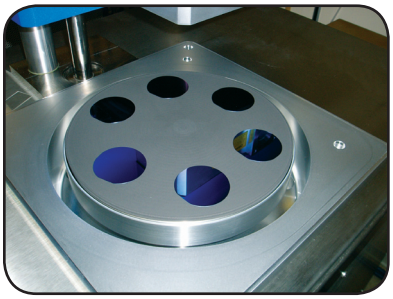
	LDRD	Other
Week pass	$2,000	$2,250
Month pass	$4,000	$4,500
Year pass	$8,000	$9,000
(No day passes)		

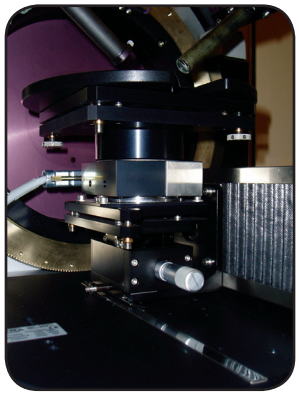
A group pass allows every member of a Laboratory group unlimited access to the facility, equipment, and staff for the entire fiscal year. Groups or organizations that select this method will be charged $70,000 (LDRD)/$78,000* (Other) for the entire year. This charge will include all training necessary to perform work in the clean room.

One-time or short-term tasks may be performed by the clean room administrator or designee. This option is designed for situations where user training for individual tasks may take longer than the total task time. This option is offered at the clean room administrator's discretion and may not be available due to work load issues. Charges for this option will be for the clean room administrator's or designee's time and effort and any relevant materials costs.

**For details, see the MPA-11 Clean Room webpage at www.lanl.gov/orgs/mpa/mpa11/cleanroom/cost.htm. MPA-11 management reserves the right to adjust rates each fiscal year for sustainable operations.*

The MPA-11 Clean Room User Facility includes (from left) a reactive ion etcher, ellipsometer, and ultrasonic wire bonder.





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