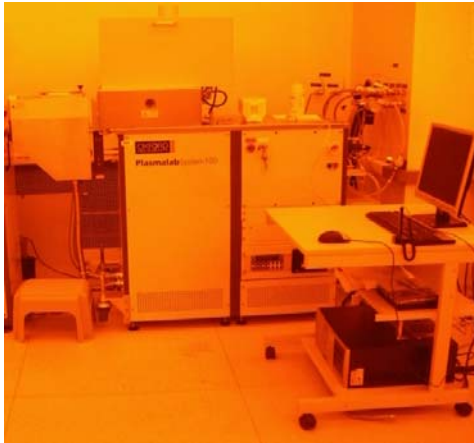


Cutting Edges



The Oxford ICP-DRIE system (on left), after installation and commissioning, inside the CAMD clean room. Key features of the new system include:

- automatic load lock system
- He and Cryo cooling system
- O₂, N₂, CF₄, and SF₆ etch gases
- Max. Power: 1,250W (ICP source) and 600W (rf generator)
- DC biasing monitor
- Semi-automatic processing

The Microfabrication group at CAMD recently hosted a workshop for users on October 8 to discuss the latest improvements of some of its clean room equipment and new research opportunities. Funded by the Louisiana Board of Regents' enhancement program, CAMD's DRIE (Deep Reactive Ion Etching) etcher from Oxford Instruments was upgraded with an ICP (Inductively Coupled Plasma) unit, allowing it to pattern high aspect ratio micro- and nanometer structures in silicon wafers needed for advanced mold insert patterning. This novel capability will meet the future needs of the large LSU-CBM² user community by augmenting the latter's efforts to pattern advanced designs for Lab-on-Chip applications.

The upgrade of CAMD's Hitachi SEM to accommodate electron beam writing capability is still work in progress, partly due to delays caused by Hurricane Gustav. While an IR camera and motorized stages have already been installed, beam blanker and E-beam writing software (Nanometer Pattern Generation System from JC Navity Lithography Systems) will be installed and made available to users after the Gustav damage of the SEM has been assessed and repaired. This new electron beam writing capability will enable CAMD users to pattern MEMS (Micro-Electro-Mechanical Systems) and NEMS (Nano-Electro-Mechanical Systems) structures down to 100nm in size.

The seminar was attended by 11 student users from different LSU departments (ME, ECE, Physics) and five CAMD staff members. Yoonyoung Jin, RA5 at CAMD, introduced the new capabilities and also facilitated the lively discussion about user projects and future process and patterning requirements. The upgrades enhance CAMD's research capabilities that will generate and promote new ideas in MEMS/NEMS research in Louisiana.