

Facilities Overview

The MRC laboratories reach users from many different fields: electronics, optics, physics, chemistry, astronomy, as well as chemical, mechanical, and petroleum engineering. Lab users are both from universities and cooperates. The MRC is more than a clean room with open-access to advanced nano-fabrication equipment ? it isa community of scientists who work together to built advanced technology products and knowledge.

The MRC NNIN facilities include 12,000 sq. ft. of class 100 and class 1000 clean-room space for Si, III-V and soft materials processing. The clean room contains a JEOL-6000FS/E-based electron beam lithography system capable of 20nm resolution on masks, small substrate pieces up to 8" wafers. The e-beam system is also used to generate master for the Step and Flash imprint lithography equipment. The S-FIL is a nano-imprint scheme for patterning of features in sub-20nm regime with ability to perform layer-to-layer alignment through a transparent template to sub-tenth micron accuracy.

The other micro/nano-fabrication facilities include sputter, e-beam and plasma deposition for metals, silicides and dielectrics, reactive-ion etching, rapid thermal processing and oxidation/diffusion furnaces for Si, Si-Ge and High-k dielectrics, LPCVD for poly-silicon, oxides, nitrides and numerous wet chemistry stations. The characterization laboratories contain the apparatus for comprehensive optical and electrical measurements.

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