

Albany NanoTech Enhances State-of-the Art Lithography Research with New EUV Source from Energetiq

July 5 2005



Albany NanoTech, a leading global center for nanotechnology research, development and deployment, today announced the delivery of a new state of the art tool for extreme ultraviolet (EUV) lithography research, built by Energetiq Technology, Inc., a developer and manufacturer of

advanced short wavelength light products for use in high technology applications.

The new tool, the EQ-10M, is a 10 watt, high brightness EUV light source which will be used for metrology research applications at the UAlbany College of Nanoscale Science and Engineering (CNSE) at Albany NanoTech, the first college in the nation devoted exclusively to the study of nanoscale scientific concepts. The EQ-10M, based on Energetiq's unique Electrodeless Z-PinchTM technology, is among the most advanced tools of its kind in the world and will serve to further augment Albany NanoTech's capabilities as a global center for advanced lithography research.

"Energetiq has developed a truly innovative EUV light source that is likely to significantly enhance EUV metrology, making mask inspection faster as well as more reliable and cost-effective," said Gregory Denbeaux, Ph.D., Assistant Professor of Nanoscience at CNSE. "This tool will play a significant role in our lithography research program as we move to 13.5 nm lithography – the most advanced research taking place today."

"We are delighted to collaborate with the world-class EUV group at UAlbany. With our Electrodeless Z-Pinch technology, we have developed an EUV source that is robust, flexible and cost effective. Our technology provides researchers with the EUV power and high brightness needed for advanced applications." stated Paul Blackborow, CEO of Energetiq. "By enabling Dr. Denbeaux's research in advanced metrology we hope to keep EUV lithography on track to reach high volume manufacturing by the end of the decade."

Lithography is the process of using light to imprint patterns on semiconductor materials that are used for integrated circuits. Lithography is one of the key technologies that has enabled the

semiconductor industry to meet the challenge of Moore's Law by allowing a 30% decrease in the size of printed dimensions every two years. EUV lithography is central to the future miniaturization of semiconductor devices since it deals in light with a wavelength of approximately 13.5 nanometers, significantly smaller than the current 193 nm tools currently used in semiconductor manufacturing.

EUV discharge plasma sources produce light by passing a current through a gas, causing the atoms in the gas to heat sufficiently that they emit the very short wavelength EUV light. Traditionally, EUV sources have used a pair of electrodes through which the current is passed. These electrodes can overheat causing debris that may end up in the optical system. The Energetiq EQ-10M is distinct in that it employs an electrode-free technology by coupling the current inductively into the discharge plasma.

Professor Denbeaux's research focuses on high resolution imaging, which requires a very small, bright point source of light. Using Xenon gas, which is simple to manipulate and non-toxic, the EQ-10M is designed to make a very small plasma producing a bright, high-powered light source. The EQ-10M will be up and running for experimentation by July 2005.

Citation: Albany NanoTech Enhances State-of-the Art Lithography Research with New EUV Source from Energetiq (2005, July 5) retrieved 18 April 2024 from <https://phys.org/news/2005-07-albany-nanotech-state-of-the-art-lithography.html>

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