



# High Intensity, Large Area, Energetic (10-100s of eV) Neutral Beams

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## Publications

- Kim, D. and D. J. Economou. "Multidimensional Plasma Sheaths and Resulting Ion/Fast Neutral Distributions at the Substrate Surface," in *Proc., Seventh International Symposium on Sputtering and Plasma Processes*, ISSP 2003, Kanazawa, Ishikawa, Japan, June 11-13, 2003. 55-62.
- Kim, D. and D. J. Economou. "Plasma Molding over Deep Trenches and the Resulting Ion and Energetic Neutral Distributions," *J. Vac. Sci. Technol. B* 21 (2003): 1248-53.
- Kim, D. and D. J. Economou. "Simulation of Plasma Molding over a Ring on a Flat Surface," *J. Appl. Phys.* 94 (2003): 3740-47.
- White, B., Q. Wang, D. J. Economou, P. J. Wolf, T. Jacobs, and J. Fourcher. "Neutral Oxygen Beam Stripping of Photo Resist on Porous Ultra Low-k Materials," *Proc., IEEE International Interconnect Technology Conference*, San Francisco, CA, June 2-4, 2003. 153.

## Presentations

- Economou, D. J. and D. Kim. "Multidimensional Plasma Sheaths and Resulting Ion/Fast Neutral Distributions on the Substrate Surface," 50th International Symposium of the American Vacuum Society, Baltimore, MD, Nov. 2-7, 2003.
- Economou, D. J., Q. Wang, B. White, P. J. Wolf, T. Jacobs, and J. Fourcher. "Photoresist Removal on Porous Low-k Materials Using a Neutral Oxygen Beam," Wafer Cleaning and Surface Preparation Workshop, International SEMATECH, Austin, TX, May 1-2, 2003.
- Economou, D. J., Q. Wang, B. White, P. J. Wolf, T. Jacobs, and J. Fourcher. "Photoresist Removal on Porous Low-k Materials Using an Energetic (100s of eV) Oxygen Neutral Beam," 50th International Symposium of the American Vacuum Society, Baltimore, MD, Nov. 2-7, 2003.
- Kim, D. and D. J. Economou. "Plasma Molding over 2-D Features," Annual Meeting of the American Institute of Chemical Engineers, San Francisco, CA, Nov. 16-21, 2003.
- White, B., Q. Wang, D. J. Economou, P. J. Wolf, T. Jacobs, and J. Fourcher. "Neutral Oxygen Beam Stripping of Photo Resist on Porous Ultra Low-k Materials," IEEE International Interconnect Technology Conference, San Francisco, CA, June 2-4, 2003.

**Dr. Demetre J. Economou, Professor of Chemical Engineering, conducts his research on high intensity, large area, energetic (10-100s of eV) neutral beams with a focus on microbial gene expression and the characterization of evolving bacterial population. His work has significant implications in the environment of space.**



**NEUTRAL BEAM—Qiang Wang, research assistant, stands at the Neutral Beam System in the Department of Chemical Engineering. He earned his M.S. degree at the Hong Kong University of Science and Technology.**

## Funding and proposals

- Economou, D. J. "A New Paradigm in Microelectronics Manufacturing Using Energetic Neutral Beams." UH-GEAR, Sept. 2003-Aug. 2004, \$18,000.
- . "Resist Cleaning Using Neutral Beams for Advanced Low-k Dielectrics." International SEMATECH, Jan. 2004-Dec. 2004, \$25,000.
- Economou, D. J. and V. Donnelly. "Energetic (100s of eV) Directional Neutral Beams for Advanced Microelectronics Manufacturing." Texas Advanced Technology Program, Jan. 2003-Dec. 2004, \$160,000; UH portion is \$80,000.