IEEE

SAN FRANCISCO BAY AREA
NANOTECHNOLOGY COUNCIL

March 2008 Seminar

Subject: **Atomic Scale Modeling of Electron Transport in MRAM**

Speaker: **Dr. Dimitri Novikov**
CTO Atomistix, Inc.

Date: Tuesday, March 18, 2008
Time: Registration & light lunch 11:30am. Presentation & Q/A 12:00 to 1pm

Location: National Semiconductor Bldg E-1 CMA Room. 2900 Semiconductor Drive, Santa Clara, CA
http://www.google.com/search?hl=en&q=2900+Semiconductor+Drive.+santa+clara%2C+ca&btnG=Google+Search
Cost: IEEE Members and Students $5. Non-Members $10

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Talk Abstract:

Atomic-scale modeling is becoming an important step in the process of designing novel advanced electronic devices, especially at the nanoscale size. Modeling R&D efforts are growing much faster than experimental research. One of the most prominent areas is the modeling of Tunneling Magnetoresistance, which is important to the production of magnetoresistive random-access memory (MRAM) and read sensors for hard drives. We will present results on atomic-scale modeling, using Atomistix's atomic scale modeling platform, of transport properties of Fe/Mg/Fe, Co/MgO/Co and FeCo/MgO/FeCo tunnel junctions at zero bias. We will show how these properties depend on the thickness of the MgO layer as well as the chemical composition of the interface layer in the case of FeCo, and compare these to published experimental results.

Speaker Biography:

Dmitri Novikov is a Computational Materials Scientist, who is the Chief Technical Officer (CTO) of Atomistix Inc. Atomistix, founded in 2001, is a leading provider of modeling tools, based in part on Dr. Novikov's work, for nanoelectronic applications. Prior to joining Atomistix, Dr. Novikov worked as a lead scientist at TIAX, LLC, where he did development work on electron transport in phosphate cathode materials for LCD displays. Prior to TIAX, Dr. Novikov worked as a lead technical consultant with Arthur D. Little, Inc., where one of his successful projects was, in collaboration with the U.S. Department of Energy, to create a higher efficiency filament for incandescent lamps. Prior to Arthur D. Little, Dmitri spent 15 years of as an academic researcher, focused on modeling of solid-state and molecular properties of numerous materials, including semiconductors. In addition to his duties as CTO at Atomistix, Dr. Novikov is also the co-founder of scientific software company QMD Inc. (http://www.flapw.com), which develops a commercial version of a density-functional package for the modeling of electronic and optical properties of solids from first-principles.

Dr. Novikov holds Ph.D. degree from Russian Academy of Sciences, and has published 79 scientific journal articles.