IEEE

SAN FRANCISCO BAY AREA NANOTECHNOLOGY COUNCIL

IEEE LEOS LASERS & ELECTRO-OPTICS SOCIETY

Santa Clara Valley Chapter

May 2007 Seminar

Jointly held with the Santa Clara Valley chapter of IEEE LEOS: www.ieee.org/scv/leos

Subject: **Integrated optofluidic chips for single molecule analysis**

Speaker: **Dr. Holger Schmidt, Associate Professor of Electrical Engineering**
University of California, Santa Cruz

Date: Tuesday, May 15, 2007
Time: Registration & light lunch 11:30am. Presentation & Q/A 12:00 to 1pm

Place: National Semiconductor Building E-1 CMA Room. 2900 Semiconductor Drive.
Take Lawrence Expressway to Kifer, north to Semiconductor Drive. Garage entrance at end of Drive. Bldg E to the left of garage entrance.

Cost: IEEE Members and Students $5. Non-Members $10

Please RSVP at our web site: www.ieee.org/nano

Talk Abstract:

Recently, there has been a growing interest in optofluidics, the combination of microfluidics and optics on a single chip. A new approach to this field has been developed based on liquid-core antiresonant reflecting optical waveguides (ARROWs). These waveguides can simultaneously guide both liquids and light and have the potential for creating fully planar optofluidic systems with ultrahigh sensitivity. In this talk, Dr. Schmidt will review the physical principle and fabrication of hollow-core ARROWs. He will then describe their application to single-molecule spectroscopy. In particular, He will discuss the detection and manipulation of single biomolecules in an ARROW-based optofluidic device and the addition of nanoscale structures for enhanced functionality.

Speaker Biography:

Holger Schmidt studies the fundamental physics of optical interactions between light and matter, with applications in the development of novel electronic and photonic devices. His research interests include integrated optofluidics for single molecule studies and biomedical applications, nano-magneto-optics, atomic spectroscopy on a chip, and nonlinear optics.

Dr. Schmidt earned a diploma in physics from the University of Stuttgart, Germany, and M.S. and Ph.D. degrees in electrical and computer engineering from UC Santa Barbara. Before joining the UCSC faculty, he was a postdoctoral fellow in the semiconductor laser group at the Massachusetts Institute of Technology. Since his arrival at UCSC in 2001, Dr. Schmidt received an NSF Career Award in 2001, and a Keck Futures Nano Award in 2005.