

**Workshop on Integrated Atomic Systems II**  
**18-19 February 2009**  
**Hotel Deca, Seattle, WA**

The experimental capabilities in atomic physics have seen dramatic progress in the past two decades since the introduction of laser cooling techniques. The progress led to new scientific discoveries like realization of dilute Bose-Einstein condensates and degenerate Fermi gas, and technological advances in precision measurements. The experimental progress has also provided a broad basis for experimental realization of quantum information science in atomic systems. The current experiments, while incorporating cutting-edge technologies in laser systems and optical components, are mostly performed using conventional optical setups using discrete optical elements. Practical systems leveraging this experimental progress require higher levels of integration, either to provide portability for atom-based sensors or to realize a new level of complex functionality in quantum information processing experiments. Recent progress in microsystems technology has allowed realization of highly functional systems with unprecedented levels of integration across various domains of physics. Micro-electromechanical systems (MEMS) technology allows miniaturization and integration of mechanical, optical, RF and fluidic components, thereby enabling highly functional integrated systems on a chip. Proper adaptation of these technologies to atomic systems has the potential to dramatically increase the practical viability and performance of atomic sensors and quantum information processors.

Building on the success of the initial Integrated Atomic Systems (IAS) Workshop held in November 2007 at Georgia Tech, a second IAS workshop "IAS II" will be held on 18-19 February 2009 in conjunction with the annual Southwest Quantum Information and Technology (SQUInT) workshop, 19-22 February 2009, in Seattle, Washington. IAS II will bring experts from the areas of atomic and trapped ion physics, MEMS technology, packaging and microsystems integration to explore opportunities for creating highly functional systems to enable advances in atomic physics. IAS II will consist of invited talks in four sessions: Atoms on Chips, Atomic Sensors and Clocks, Enabling Technologies for Integrated Atomic Systems, and Integrated Ion Traps,. A contributed poster session will be held on 18 February.

***Information***

Workshop on Integrated Atomic Systems I - <http://www.gtqi.gatech.edu/iasworkshop.shtml>  
Workshop on Integrated Atomic Systems II and SQUInT - <http://www.squint.org/>

***Organizers***

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## Workshop on Integrated Atomic Systems II

### Invited Speakers

*Workshop begins Wednesday afternoon 18 February 2009*

#### *Atoms on Chips*

Steven Miller, Air Force Research Laboratory  
Tom Purdy, UC Berkeley  
Holger Schmidt, UC Santa Cruz  
Thorsten Schumm, Technical University of Vienna  
Joseph Thywissen, University of Toronto  
Michael Trupke, Imperial College

#### *Atomic Sensors and Clocks*

Dmitry Budker, UC Berkeley  
Clark Griffith, NIST Boulder  
Robert Lutwak, Symmetricom  
John Prestage, Jet Propulsion Laboratory  
Michael Romalis, Princeton University  
Peter Schwindt, Sandia National Laboratories

#### *Enabling Technologies for Integrated Atomic Systems*

Jeffrey DeNatale, Teledyne Scientific  
Ron Folman, Ben Gurion University  
Shanalyn Kemme, Sandia National Laboratories  
Amit Lal, DARPA  
Lih Lin, University of Washington  
Darwin Serkland, Sandia National Laboratories

#### *Integrated Ion Traps*

Jason Amini, NIST Boulder  
Brad Blakestad, NIST Boulder  
Ken Brown, Georgia Institute of Technology  
John Chiaverini, Los Alamos National Laboratory  
Wolfgang Hänsel, University of Innsbruck  
David Leibrandt, Massachusetts Institute of Technology  
David Lucas, University of Oxford  
Steve Olmschenk, University of Maryland