

**SEALeR Agenda March 15-16, 2012, Annapolis, MD**

**Day 1**

**7:30 Registration**

**7:30 – 8:30 Continental Breakfast**

**8:30 – Kevin Osborn, Laboratory for Physical Sciences, “Welcome: From SQUIDs to SEALeR”**

**8:50 Energy-Efficient Computing: Reversible, Charge Recovery, and Adiabatic (session 1)**

**8:50-9:30 Tommaso Toffoli, Boston University, “Domesticating Microphysics for Computation (“Reversible Computing” and all that ...) Overall View, Objectives, and Obstacles”**

**9:30-10:00 Marios Papaefthymiou, University of Michigan, “GHz-Speed Charge-Recovery VLSI Design”**

**10:00-10:30 Gregory Snider, University of Notre Dame, “Minimum Energy for Computation, the Landauer Principle and Adiabatic CMOS”**

**10:30 Coffee and Tea Break**

**11:00 Superconducting Vortices, Qubits (session 2)**

**11:00-11:40 Britton Plourde, Syracuse University, “Superconductor vortex dynamics and Josephson devices: ratchets and qubits”**

**11:40-12:20 Alexey Ustinov, Karlsruhe Institute of Technology, “Low-Power Superconducting Logic: Learning from Long Underdamped Discrete Josephson Junctions”**

**12:20 Lunch**

**1:30 Superconducting SFQ and Reversible Computing (session 3)**

**1:30-2:10 Anna Herr, Northrop Grumman, “Principles of Superconducting Digital Logic”**

**2:10-2:50 Quentin Herr, Northrop Gumman, “Ballistic Single-Flux-Quantum Logic”**

**2:50 afternoon break (coffee, tea, cold drinks and cookies)**

**3:20 Reversible Computing with nSQUIDs (session 4)**

**3:20-4:00 Vasili Semenov, Stony Brook University, “One Prospective Approach to Energy Saving (Reversible) Computing”**

**4:00-4:30 Jie Ren, HYPRES, “Engineering and Measurement of nSQUID Circuits”**

**4:40-5:20 Speaker and Audience Meetings: Audience questions generated for tomorrow’s wrap up sessions; Speakers brainstorm about tomorrow’s Q&A wrap up sessions**

Audience questions for wrap up sessions distributed via e-mail at approximately 6 PM

## Day 2

7:30 – 8:30 Continental Breakfast

### **8:30 Reversible Computing, Theory (session 5)**

8:30-9:10 Charles Bennett, IBM, “Brownian reversible computing and the thermodynamics of error correction”

9:10-9:50 Dmitri Averin, Stony Brook University, “Information to energy conversion in an electronic Maxwell’s Demon and thermodynamics of measurements”

9:50 Coffee and Tea Break

10:10-10:50 Michael Frank, Florida State University, “Towards a More General Model of Reversible Logic Hardware”

### **10:50-11:50 SEALeR wrap up I– (session 6)**

Question and Answer wrap up with speakers in sessions 2, 4, and 5

11:50 Lunch

### **1:20 Reversible Computing Design and Architecture (session 7)**

1:20-1:50 Alex De Vos, University of Gent, “Reversible MOS chips”

1:50-2:20 Steve Shauck, Northrop Grumman, “Reversible Logic: The cost of full reversibility”

### **2:30-3:30 SEALeR wrap up II - (session 8)**

Question and Answer wrap up with speakers in sessions 1, 3, 7