COMS/nanoUtah 2014 – Student Poster Contest

This year, the Commercialization of Micro-nano Systems Conference (COMS) and nanoUtah Conference will partner for a four-day conference in downtown Salt Lake City. The poster competition is designed to highlight student research in the areas of nanoscience and technology to the broader community, aid in developing presentation skills, encourage student participation in the conference, and engender a competitive spirit among the participants. Monetary awards will be presented to the 1st place posters in each session, and plaques will be presented to the 1st, 2nd, and 3rd place posters in each session. The awards will be presented on Monday, October 13, 2014.

Logistics:

- Abstract Deadline: **September 1, 2014**
- **Submit on-line at**: http://coms2014.com/call-for-papers/
- Conference Date: Monday, October 13, 2014
- Location: The Grand America Hotel, 555 S. Main Street, Salt Lake City, UT 84111
- Poster setup: Sunday, October 12th (time TBA). For those that cannot setup their poster on Sunday, you will have the option to setup on Monday, October 13th between 7:00-8:00AM. Posters will need to be setup by Monday, October 13th at 8:00AM and stay up through the end of the COMS Conference, Wednesday, October 15th. Posters can be picked up October 16th-17th at the University of Utah campus, Sorenson Molecular Biotechnology Building (SMBB), room 2500. Please contact amy.vanroosendaal@utah.edu to make special arrangements.
- Poster Dimensions: 48" x 48" maximum

- To enter, participants must submit an abstract at http://coms2014.com/call-for-papers/. **You must register for the conference and setup your poster by 8:00AM Monday, October 13th to participate in the poster session.** You will not need to be present during the judging. Please follow the instructions below and view the sample abstract.

Abstract Submission:

- Name
- Email Address
- Message
- Company/Institution
- Phone Number
- Abstract Title
- List additional authors
- Identify your preferred session for presentation:
  1. Energy and Emerging Technologies
  2. Emerging Technologies in Biomedical Healthcare
  3. Technology Transfer
- Abstract: 400 words maximum

Judging Criteria:

- Abstract Review
  1. Scientific merit of the abstract
  2. Availability of experimental data
  3. Technical writing
- Poster Review
  1. Scientific merit of the research
  2. Experimental design and thoroughness
  3. Organization and visual quality of presentation
  4. Validity of conclusions

SAMPLE ABSTRACT

"Spinning Disc Platform for Digital PCR"

Preferred Session: Devices and Sensors

Presenter: **Scott O. Sundberg**

Bruce K. Gale, Carl T. Wittwer

University of Utah: Departments of Bioengineering, Mechanical Engineering, and Pathology

Digital PCR is capable of detecting single DNA molecules. Rare mutations within an excess of normal DNA can be detected and genetic allelic imbalance can be quantified. This process is expensive and difficult because of the thousands of reactions necessary. Although dilutions can be used to achieve single DNA copy reactions, reduction in sample volume is another solution. The spinning disc platform uses an inexpensive rotating disc to partition the sample into a thousand nanoliter-sized wells.

A PETG sheet was patterned with a spiraling channel having 1,000 wells (30 nL/well), facing radially outward and tangential along the spiral, and then laminated between two similar PETG sheets, thus creating the rotating disc. PCR solution was pipetted into an inlet port towards the center of the disc and spun at 4,000 rpm to load each well. A modified air thermal cycler was used for PCR amplification (40 cycles in 25 minutes) and the disc was interrogated using a CCD camera image to determine how many wells fluoresce for quantification.

All wells were filled with a volume CV of 20%. Single DNA molecule detection is possible with target dilution down to less than an average of 1 copy/well. The spinning disc platform is capable of partitioning and quantifying a sample and can now be applied to multiple digital PCR applications. The spinning disc platform is an improvement over other volume limiting platforms because no valving or pumping is required. Furthermore, rapid air cycle PCR is possible for increased speed and throughput.

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