

Posters

Session Chairs:

Dr. Shamus McNamara, *University of Louisville, USA*

Mark Crain, *University of Louisville, USA*

Electrowetting: Novel Devices and Applications

Composite Dielectrics and Surfactants for Low Voltage Electrowetting Devices

B. Raj, *University of Cincinnati, USA* ; N. R. Smith, *University of Cincinnati, USA* ; Christy, *University of Cincinnati, USA* ; M. Dhindsa, *University of Cincinnati, USA* ; J. Heikenfeld, *University of Cincinnati, USA*

Cleanroom Facilities and Infrastructure

Microelectronics at Alfred State College

David J. Hunt, *Alfred State College, USA*

Cleanroom Utilities Overview: University of Louisville

Don Yeager, *University of Louisville, USA*

Micro-Sensors and Systems/Nanotechnology-Based Developments at AMRDEC

Tracy Hudson, *U.S. Army Aviation & Missile Research Development and Engineering Center, USA*

The Motorola Nanofabrication Research Facility (MNRF) at Florida International University

Roberto R. Panepucci, *Florida International University, USA* ; Neal Ricks, *Florida International University, USA* ; W. Kinzy Jones, *Florida International University*

The Montana Microfabrication Facility: Establishing a firm foundation for Multidisciplinary Micro/Nano Research

Dr. Philip Himmer, *Montana State University, USA* ; Dr. David Dickensheets, *Montana State University, USA*

An Interuniversity Research, Development, and Training Center in Nano: National Nano Device Laboratories, Taiwan, Republic of China

Jyh-Hua Ting, *National Nano Device Laboratories, Taiwan, R.O.C*

The NanoFab Facility at Arizona State University: A Flexible Foundry for Individuals, Companies, and Universities

Stefan Myhajlenko, *Arizona State University, USA* ; Tim Eschrich, *Arizona State University, USA* ; Art Handugan, *Arizona State University, USA* ; Paul Boland, *Arizona State University, USA* ; Carrie Sinclair, *Arizona State University, USA* ; Wayne Paulson, *Arizona State University, USA* ; Jon Martin, *Arizona State University, USA*

Semiconductor Devices

A Simulation Approach for Device Scaling

Karl D. Hirschman, *Rochester Institute of Technology, USA* ; Robert G. Manley, *Rochester Institute of Technology, USA* ; Burak Baylav, *Rochester Institute of Technology, USA* ; Andrew Merrill, *Rochester Institute of Technology, USA* ; Amandeep Saluja, *Rochester Institute of Technology, USA* ; Siddhartha Singh, *Rochester Institute of Technology, USA*

University Micro-Nano Curriculum Development

Your Cleanroom as an Outreach Vehicle

Joseph H. Lake, *University of Louisville, USA* ; Ana S. Kieswetter, *University of Louisville, USA* ; Mark M. Crain, *University of Louisville, USA* ; B. W. Alphenaar, *University of Louisville, USA* ; Robert S. Keynton, *University of Louisville, USA* ; Mickey R. Wilhelm, *University of Louisville, USA* ; Kevin M. Walsh, *University of Louisville, USA* ;

The Center for Macromolecular Modeling and Materials Design (CM³D) at Cal Poly Pomona: A Means for Enabling Interdisciplinary Science and Engineering Education at a Public Teaching University

Samir J. Anz, *California State Polytechnic University, USA* ; Phyllis R. Nelson, *California State Polytechnic University, USA*

MEMS Design Course Solutions to the Tennessee Trash Problem

Paul Luttrell, *Tennessee Tech University, USA* ; Matt Drummonds, *Tennessee Tech University, USA* ; Matt Ervin, *Tennessee Tech University, USA* ; Jacob Sluder, *Tennessee Tech University, USA* ; Evan Weeks, *Tennessee Tech University, USA* ; Joseph Biernacki, *Tennessee Tech University, USA* ; Satish Mahajan, *Tennessee Tech University, USA* ; Stephen Parke, *Tennessee Tech University, USA* ; Chris Wilson, *Tennessee Tech University, USA*

Development of a New Course on Carbon Nanomaterials

Mool Gupta, *University of Virginia, USA* ; Harry C. Dorn, *Virginia Polytechnic Institute of State University, USA*

MEMS Actuators and Sensors

Modeling a Monolithic Comb Drive for Large-Deflection Multi-DOF Microtransduction

J. V. Clark, *Purdue University, USA*

Piezoresistive Geometry for Maximizing Microcantilever Array Sensitivity

Patrick C. Fletcher, *University of Louisville, USA* ; Y. Xu, *University of Louisville, USA* ; P. Gopinath, *University of Louisville, USA* ; J. Williams, *University of Louisville, USA* ; B. W. Alphenaar, *University of Louisville, USA* ; R. D. Bradshaw, *University of Louisville, USA* ; Robert S. Keynton, *University of Louisville, USA*

Ultrasonic Nanostructured Thin Film Transducers for Flooded Member Detection

Matthew Hartmann, *Louisiana Tech University, USA* ; Ville Kaajakari, *Louisiana Tech University, USA*

Out-of-Plane and In-Plane Arrays of Silicon Microneedles

Hiren Trada, *University of Louisville, USA* ; Kevin M. Walsh, *University of Louisville, USA* ; Scott Cambron, *University of Louisville, USA*

Microelectronic Development with MEMS Capable Caseless Projectiles

Blake Hosli, *Louisiana Tech University, USA* ; Chester Wilson, *Louisiana Tech University, USA*

Measurement of Intraocular Pressure from the Extra-Ocular Space of the Eye Using a MEMS Pressure Sensor

Matthew Turner, *University of Louisville, USA* ; John Naber, *University of Louisville, USA* ; Kevin M. Walsh, *University of Louisville, USA*

Wireless MEMS/NEMS

Strain-Induced Three-Dimensional Microfabrication for Advanced Antenna Architectures

Y. M. Senousy, *University of Louisville, USA* ; Evgeniya Moiseeva, *University of Louisville, USA* ; Cindy Harnett, *University of Louisville, USA*

A Wireless Microsystem for MEMS Capacitive Sensor Using Bluetooth

Jirachai Getpreecharsawas, *Rochester Institute of Technology, USA* ; Lynn F. Fuller, *Rochester Institute of Technology, USA*

Optical Devices

Sub-Micron Integrated Grating Couplers for Single-Mode Planar Optical Waveguides

Colin M. Hayes, *University of Louisville, USA* ; Marcelo B. Pereira, *University of Louisville, USA* ; Baylor C. Brangers, *University of Louisville, USA* ; Mustafa M. Aslan, *University of Louisville, USA* ; Rodrigo Sergio Wiederkehr, *University of Louisville, USA* ; Sergio B. Mendes, *University of Louisville, USA* ; Joseph H. Lake, *University of Louisville, USA*

Fast Estimation of Total Quality Factor of Photonic Crystal Slab Cavities

T. Liu, *Florida International University, USA* ; R. R. Panepucci, *Florida International University, USA*

Processing and Materials for Micro-Nano Technology

High-Temperature Microreactors for In-Situ Nanomaterial Deposition

Evgeniya Moiseeva, *University of Louisville, USA* ; Cindy Harnett, *University of Louisville, USA*

Shape Memory Alloys and Their Use in MEMS Capable Deployable Sensors

Daniel Scoggin, *Louisiana Tech University, USA* ; Chester Wilson, *Louisiana Tech University, USA*

Direct Wire Fabrication of Polymer Fibers for Microscale Applications

Scott M. Berry, *University of Louisville, USA* ; Scott D. Cambron, *University of Louisville, USA* ; Sean P. Warren, *University of Louisville, USA* ; Santosh Pabba, *University of Louisville, USA* ; Robert W. Cohn, *University of Louisville, USA* ; Robert S. Keynton, *University of Louisville, USA*

Surface Plasmon Resonance (SPR) Effect in Nanoscale Nichrome Alloy Films

Maarij Syed, *Rose-Hulman Institute of Technology, USA* ; Chris Leibs, *Rose-Hulman Institute of Technology, USA* ; Azad Siahmakoun, *Rose-Hulman Institute of Technology, USA*

Low Temperature Adhesive Bonding of CE Devices

Susan Carrol, *University of Louisville, USA* ; Mark M. Crain, *University of Louisville, USA* ; John F. Naber, *University of Louisville, USA* ; Robert S. Keynton, *University of Louisville, USA* ; Kevin M. Walsh, *University of Louisville, USA* ; Richard P. Baldwin, *University of Louisville, USA*

Rapid Colloidal Assembly with Optically Induced Electrokinetic Forces

Stuart J. Williams, *Purdue University, USA* ; Aloke Kumar, *Purdue University, USA* ; Steve Wereley, *Purdue University, USA*

Lab-on-a-Chip Devices and Systems

Microfabricated Electrochemical Sensor for Water Monitoring System

Lukasz Sztaberek, *University of Louisville, USA* ; Michael Martin, *University of Louisville, USA* ; Thomas Roussel Jr., *University of Louisville, USA* ; Kevin M. Walsh, *University of Louisville, USA* ; Robert S. Keynton, *University of Louisville, USA* ; Richard P. Baldwin, *University of Louisville, USA*

Design and Fabrication of a PDMS Micropump with Moving Membranes

Charles P. Cartin, *Virginia Commonwealth University, USA* ; Ramana M. Pidaparti, *Virginia Commonwealth University, USA* ; Gary M. Atkinson, *Virginia Commonwealth University, USA*

MEMS Platform for Studying Planar Lipid Bilayers

Michael Martin, *University of Louisville, USA* ; Tom Schuhmann, *Dupont Manual High School, USA* ; Robert S. Keynton, *University of Louisville, USA* ; Kevin M. Walsh, *University of Louisville, USA* ; Scott Cambron, *University of Louisville, USA*

Numerical Study of a Piezoelectric Microvalve Using Continuum Methods

Rodrigo Sergio Wiederkehr, *University of Louisville, USA* ; Maria Cecilia Salvadori, *University of Sao Paulo, Brazil* ; Fernando Massa Fernandes, *University of Sao Paulo, Brazil* ; Mauro Cattani, *University of Sao Paulo, Brazil*