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From: Sanchez Galiano,Ana Maria
Sent: Wednesday, March 20, 2013 6:20 PM
Subject: Kentucky nanoNET's Spring 2013 Newsletter

KYnanoNET
Connecting Kentucky's Micro/Nano Community

Sign Up for Free Membership/ Add your profile to our **Researchers Database**, click here
List your Location as a Node, click here

KYNN News and Events Jan-Mar 2013

KYNN Overview

Editor: Ana Sanchez Galiano

The Kentucky nanoNET (KY nanoNET or simply KYNN) is a Kentucky NSF EPSCoR initiative for developing an "electronic parkway" within the Commonwealth for tying together all the various facilities, resources and people involved in micro/nanotechnology, advanced materials, and MEMS (micro-electro-mechanical systems). NSF projects the field of nanotechnology to explode from a $400B industry today to a $2.5T industry by 2020. To accommodate that tremendous level of growth, it is predicted that 2,000,000 nanotechnologists will need to be trained by 2020, a hundred fold increase in the number today (20,000). The NSF-supported KYNN initiative will help position the state of Kentucky to be an active participant in that economic opportunity. KYNN presently consists of 17 distinct nodes and over 90 researchers and continues to grow each week. Please enjoy this newsletter and contact Ana Sanchez Galiano or Dr. Kevin Walsh to get involved with KYNN.

Equipment Spotlight

In each newsletter, a signature tool from one of the KYNN nodes is highlighted. Today we present the newly acquired Trion Metal Etcher III System from the Micro/Nano Technology Center at the University of Louisville.

Please contact Ana Sanchez Galiano to get your capability listed in a future newsletter edition.

Trion Phantom Minilock III Reactive Ion Metal Etcher

The Phantom III RIE is designed to supply research and failure analysis laboratories with state-of-the-art plasma etch capability using single wafers, dies or parts using fluorine and oxygen based chemistries. The system has a compact, modular design built on a space-saving platform. Because metal and compound semiconductor etch processes use corrosive chemistries and are often sensitive to atmospheric moisture, consistent results as well as safety depend upon isolating the reaction chamber from the atmosphere. In addition, when operating at lower pressure, maintaining reproducible results from run to run is impacted when the chamber is exposed to the atmosphere between each run. The Minilock- Phantom III solves these and other issues with its fully integrated load-locked delivery system.

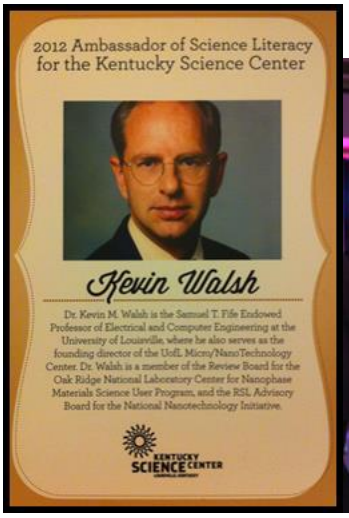
How to access:
For information about this system and access to the UofL Micro/Nano Technology Center, please contact Julia Aebersold @ julia.aebersold@louisville.edu
or visit the Micro/Nano Technology Center's website : http://www.louisville.edu/micronano

KY NANO NEWS from KYNN Members

Ky nanoNET Director, Dr. Kevin Walsh, Receives the "Science Ambassador Award"

Dr. Kevin Walsh, UofL Electrical and Computer Engineering Professor and Director of The Micro/Nano Technology Center and the Ky nanoNET is named 2012 Ambassador of Science Literacy by the Kentucky Science Center. Dr. Walsh received his award at the Kentucky Science Center's annual fundraising gala, Science with a Twist, Jan. 19 at the educational museum. "The celebration,

themed “Every Body Will Be There,” offered those attending the unique opportunity to be among the first in Louisville to view the breathtaking new anatomy exhibition, Body Worlds Vital. Proceeds from Science with a Twist will contribute to the vitality of the Kentucky Science Center, to provide impactful educational experiences in science, technology, engineering and math.” **The Voice-Tribune. “Science With A Twist” Jan 24 2013**
Photos by Bill Wine, The Voice-Tribune



Mayor Greg Fisher, Joanna Haas, and honoree Kevin Walsh.

Don’t miss the opportunity to see the new anatomy exhibit at KSC! For tickets visit the KSC’s website http://www.kysciencecenter.org/

Nano Days Celebrations is Around the Corner – April 5-7, 2013 @ KSC

To volunteer for this event please contact Andrew Spence, Andrew.spence@louisvilleky.gov

Nanodays is an annual event sponsored by the NSF NISE (Nanoscale Informal Science Education) Network which celebrates the nano-sciences with educational programs about nano-scale science and engineering and its potential impact on the future. Nanodays at the Louisville Science Center has become a popular event among the science-curious kids and adults. The number of visitors to this event has been increasing every year as well as the number of volunteers. Volunteering to this event is very enjoyable, the expressions of satisfaction shown by visitors as they learn that the “invisible” science is very much present in their everyday lives, makes this event a rewarding educational experience.

This year’s celebration will take place **on April 5-7, 2013** @ the Kentucky Science Center with the participation from University of Louisville and University of Kentucky faculty, staff, and students.

To learn more about NanoDays visit http://nisenet.org/nanodays


Tiny science lessons turn out to be big fun

Nano Days generate loads of kid interest

2013 KY WORKSHOP ON RENEWABLE ENERGY MARCH 24-26,2013

Last call to register!, go to www.uoflalumni.org/conn-energy-2013

Gather in beautiful downtown Louisville with top researchers from Kentucky universities and industries to discuss the latest developments and challenges in renewable energy and energy efficiency technologies. Discover current research from across the state and discuss a focused technological road map for commercialization of various renewable energy innovations in Kentucky. Excellent networking opportunity!

Posters are invited on recent fundamental discoveries that can significantly further the science and technology of renewable energy and energy efficiency research. Students are encouraged to participate in this workshop and the scientifically judged poster competition.

To view agenda click here

To see event flyer click here

SAVE-THE-DATE 2013 KY nanoSYMPOSIUM - AUGUST 16-17,2013 on UofL Belknap Campus.

In partnership with Western Kentucky University, Sullivan University, and University of Kentucky, The Ky nanoNET team invites you to participate in the 2013 Kentucky Nano Symposium.

The purpose of this Symposium is to bring together micro and nanotechnology researchers within Kentucky and the surrounding regions to discuss new findings, share results, and network with one another. The Symposium is open to all scientists, engineers, and students from a variety of disciplines including microtechnology, nanotechnology, nanomedicine, energy, advanced materials, MEMS, biotechnology and nano-education. The KY NanoSymposium also promises to expand the awareness of core facilities that exist within the region and cultivate new research collaborations, helping to expand the reach of the NSF-funded KY nanoNET Initiative. Researchers and representatives of university micro/nano fabrication laboratory facilities, ranging from new labs to nationally recognized service centers, will find this symposium an excellent forum for exchanging information and presenting new

research and educational concepts. Come join the 2013 KY NanoSymposium to promote your interesting area of micro/nanotechnology.

Registration Coming SOON!

KYNN KORE – Photomask Program

KORE (Kentucky Optical REsources) is KYNN's program for supplying high-quality photomasks and advanced lithographic processes such as e-beam lithography and greyscale lithography. KORE is available to both KYNN members and outside users. For more information, see details listed below or visit http://kynanonet.org/kore1/

KORE News: KORE has recently launched a web portal exclusively for Mask Generation and Lithographic Services www.louisvillephotomask.com. KORE clients are now able to submit their photomask order and explore the many available capabilities in lithographic fabrication the Micro/Nano Technology Center offers through this initiative.

KYNN KRUNCH – Shared Software Program

KRUNCH (Kentucky Research Users of Nano CAD Hub) is KYNN's shared software program which offers commercial micro/nano/MEMS CAD tools to its academic KY members at no cost. Presently four commercial software packages are offered (Tanner Tools, Coventorware, Intellisense, Silvaco). For more information, see details listed below or visit http://kynanonet.org/krunch/

KRUNCH News:

- **Sign up for KRUNCH Software: Fill out the Krunch Access Request form**

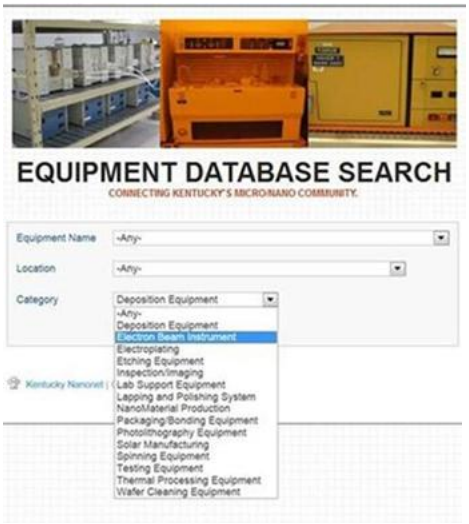
KYNN is operated out of the University of Louisville Shumaker Research Building, home to the nationally-recognized Micro/NanoTechnology Center (MNTC). The MNTC encompasses core facilities for micro and nano fabrication, packaging, metrology & testing. The center includes a 10,000 sq. ft, 7-bay, class 100/1000 cleanroom, the largest in the state of Kentucky.

KYNN Researcher Database

The new KY nanoNET Researcher Database contains a comprehensive listing of individuals in Kentucky who are involved in the fields of microtechnology, nanotechnology, MEMS, and advanced materials. Its goal is to promote joint collaboration and facilitate the sharing of available resources and information in the State of Kentucky.

KYNN Equipment Database

This resource is designed to give a clear picture of the vast number of tools and capabilities that are available within the state and the Ky nanoNET. The equipment database will be constantly evolving as KyNN Nodes add new tools and process.



KYNN Participating Nodes

What's In A Node?

The basic structure of the Kentucky Nanonet is similar in visualization to a simple computer network. The KyNN is made up of laboratories, research centers and departments across the State of Kentucky that have an interest in some aspect of Micro/Nanotechnology. These Nodes vary in size and scope, but all share the common bond of Micro/Nanotechnology.

Like a traditional network, the Nodes have joined the KyNN to improve inter-University communication and collaboration. The KyNN also maintains an inventory of equipment and processes that are available at the various Nodes to allow researchers in the State to better leverage the available infrastructure.
INTERESTED IN BECOMING A KENTUCKY NANONET NODE?

LIST OF CURRENT KY NANONET NODES:

- EKU Department of Chemistry
- The ElectroOptics Research Institute and Nanotechnology Center (ERINC)
- UofL Conn Center for Renewable Energy Research
- MOREHEAD RF Micro-Characterization Lab

- MURRAY State MicroElectronics Lab
- Sullivan University College of Pharmacy
- UK Catalyst Research and Testing Center
- UK Center for Advanced Materials (CAM)
- UK Center for Nanoscale Science & Engineering (CeNSE)
- UK Electron Microscopy Center (EMC)
- UK Imaging Center
- UK Mass Spectrometry Facility
- UofL Micro/Nano Technology Center (MNTC)
- UofL Rapid Prototyping Center
- UofL Wireless & IC Design Laboratory
- WKU Nondestructive Analysis (NOVA) Center
- UK Center for Applied Energy Research (CAER)

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