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From: Sanchez Galiano, Ana Maria
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Subject: Kentucky nanoNET's May-June 2012 Newsletter



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KYNN News and Events May - June 2012

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 Zeiss EVO Extreme Variable Pressure Scanning Electron Microscope from The ElectroOptics Research Institute and Nanotechnology Center.

Please contact [Ana Sanchez Galiano](#) to get your capability listed in a future newsletter edition.



Zeiss EVO 40 Extreme Variable Pressure Scanning Electron Microscope

Zeiss EVO 40 Extreme Variable Pressure Scanning Electron Microscope is a LaB6 filament SEM. Variable pressure is used to neutralize charging on non-conductive samples and to study the effects of relative humidity (from 0-100%) on soft or living cells, tissues, foods, etc., or to observe crystallization of salts from solution. The EVO has a 4"x4"x±90 degree precision stage. The SEM also supports heating and cooling sample stages and a Zyvex nanomanipulator for electrically and mechanically probing samples of interest. The instrument also has several software options, including dual view, metrology and live movie capture.

How to access:

For information about the equipment and access to The ElectroOptics Research Institute and Nanotechnology Center (ERINC), please contact Joe Williams @ jpwill09@exchange.louisville.edu or visit the ERINC website : <http://www.ee.louisville.edu/~eri/>

Recent KYNN Coordinated Events

1st Annual KY NanoTechnology Symposium



This past March Western Kentucky University, KY EPSCoR, and KY nanoNET held the 1st Annual KY Nanotechnology Symposium in Bowling Green, KY. The symposium brought together micro and nanotechnology researchers within the South and Midwest regions. It was open to all scientists, engineers and students from a wide range of disciplines involving microtechnology, nanotechnology and advanced materials. The symposium also aimed to expand the awareness of core facilities that exist within the region, and cultivate new research collaborations. Participant presentations

focused on advanced material synthesis, metrology and characterization, devices, education, and core facilities. Over 100 researchers and scientists participated in this regional symposium.



Photos by [Dr. Ed Kintzel, NOVA Center Director](#). This event took place March 30 - 31, 2012 @ Western Kentucky University.

Upcoming Events from KYNN Members

[Nanotechnology Symposium – Sullivan University](#)

Abstract Due: June 29, 2012

Event Date: Sep 21 – 22, 2012

[2012 Kentucky Statewide Workshop: Renewable Energy & Energy Efficiency](#)

Register Online

Event Date: Aug 26-28, 2012

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.

WELCOME TO THE KYNN RESEARCHERS DATABASE
CONNECTING KENTUCKY'S MICRO/NANO COMMUNITY.

FRIDAY, OCTOBER 28, 2011 AT 12:25PM

KYNN Researcher Data Base

First Name
Last Name
Research Area of Interest
Affiliation

Search

KYnanoNET
Connecting People Together

Name	Email	Affiliation	Research Area of Interest
John Doe	john.doe@university.edu	University of Kentucky	Microtechnology
Jane Smith	jane.smith@university.edu	University of Kentucky	Nanotechnology
Bob Johnson	bob.johnson@university.edu	University of Kentucky	MEMS

[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.



EQUIPMENT DATABASE SEARCH

CONNECTING KENTUCKY'S MICRO/NANO COMMUNITY.

Equipment Name

Location

Category

- Any-
- Deposition Equipment
- Electron Beam Instrument**
- Electroplating
- Etching Equipment
- Inspection/Imaging
- Lab Support Equipment
- Lapping and Polishing System
- NanoMaterial Production
- Packaging/Bonding Equipment
- Photolithography Equipment
- Solar Manufacturing
- Spinning Equipment
- Testing Equipment
- Thermal Processing Equipment
- Wafer Cleaning Equipment

 Kentucky Nanonet |

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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