

SUMMARY: The KY nanoNET Initiative is a five-year program for the development of an infrastructure network and support system throughout Kentucky for the specific advancement of micro/nanotechnology and the many fields of research/education that utilize this pervasive technology. The KyNN is made up of three main components: the KY nanoNET web portal and associated tools, the KRUNCH shared software initiative, and KORE which is a statewide resource for lithography-related services.

K. Walsh, A. Sanchez Galiano, S. McNamara, C. McKenna, T. Roussel, B. Westhoff, C. Vissers, R. Keynton, M. Crain, J. Lake, and J. Loomis

Web Presence

KYnanoNET.org

Kentucky nanoNET (KyNN) is an initiative to help improve communication and provide a range of tools to help facilitate collaboration between the geographically distributed micro/nano researchers and 17 individual laboratories (i.e. nodes) in Kentucky and surrounding areas.



Improving Communication
In order to help improve communications between institutions, the KyNN is leveraging several popular social media platforms to provide a virtual gathering place for researchers.

Facebook Page – Kentucky Nanonet
Twitter – @kynanonet



Researchers Database
KyNN's online directory of nano-researchers helps networking and collaborations among the research centers in the State

Equipment Database
KyNN's online directory of tools for micro-nano processes available in the 17 KYNN Node locations

News and Events

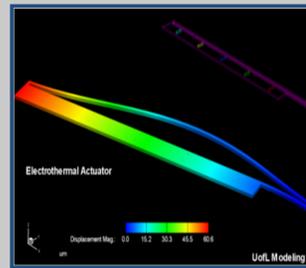
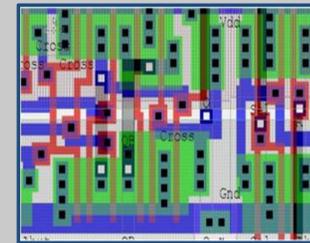
The KyNN has a distribution system in place for news, events, video or audio, etc. which is providing a way for Nodes and researchers to submit information to a central site and reach the larger community.

Shared Software Initiative

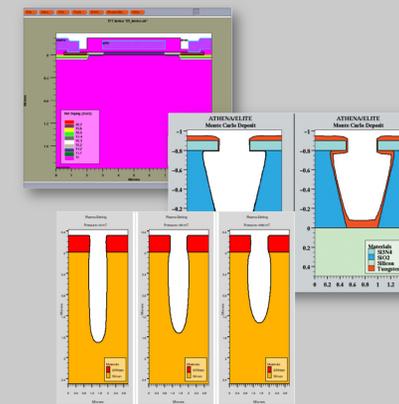
KY Research Users of Nano CADtools Hub (KRUNCH)

The KRUNCH shared software initiative offers high-end CAD tools to users participating in the KY nanoNET. While excellent tools for research and design, these software packages also are extremely effective as training aids for those learning the steps and techniques of micro/nano fabrication and device design.

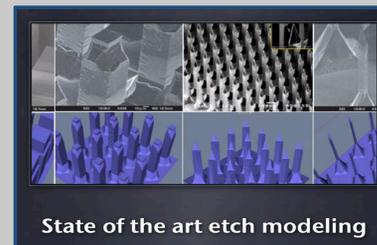
Tanner EDA
(Tanner Research, Monrovia, CA)
Capabilities: IC Design and Layout, Electrical simulation, Design Rule-checking



CoventorWare, SEMulator
(Coventor, Inc., Cary, NC)
Capabilities: Integrated multiphysics Finite Element Analysis of MEMS devices including Mechanical, Electrical, Optical, Fluidic, Electromagnetic, Package Analysis, System-Level Design



Silvaco TCAD
(Silvaco, Inc., Santa Clara, CA)
Capabilities: Fabrication Process Simulation (ion implantation, diffusion, oxidation, physical etching), IC Device Simulation (electrical optical, thermal)



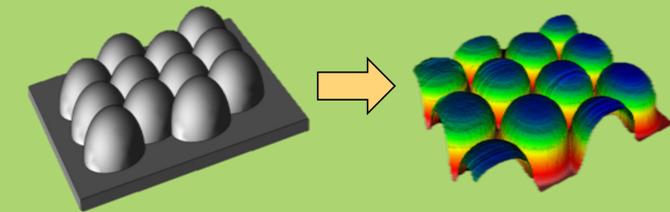
Intellisuite
(IntelliSense Corp, Woburn, MA)
Capabilities: Layout, Etch Simulation, MEMS Finite Element Analysis (Mechanical, Electrical, Microfluidic, Electromagnetic)

Photomask Generation

KY Optical Resources (KORE)

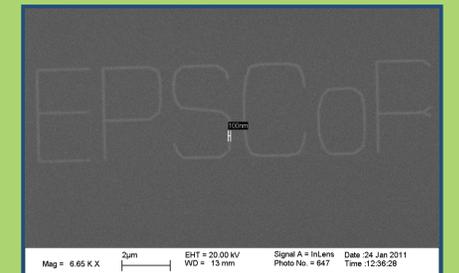


Photomask Generation
Through KORE, the UofL MNTC has acquired a Heidelberg DWL 66FS Laser Pattern Generator which is capable of producing 4", 5", 7" and 9" photomasks and direct write lithography.



Grayscale Lithography
Using a single exposure lithographic technique we are able to create complex 3D structures in photoresist. The Heidelberg DWL 66FS is capable of distinguishing 128 grayscale levels of exposure.

E-Beam Lithography
The most recent system for KORE users is the Raith 150, an SEM designed to expose e-beam resists. This machine is capable of exposing feature sizes below 50nm.



Take advantage of KORE services, visit www.louisvillephotomask.com today!