U.S. National Nanotechnology Initiative Resources for Researchers

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EU Brokerage Event on KET in Horizon 2020 Strasbourg, France



Foster the transfer of new technologies into products for commercial and public benefit.

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USPTO

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USGS

NIOSH

DOS

DOTr

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IC/DNI

U.S. National Nanotechnology Initiative

- Develop and sustain educational resources, a skilled workforce, and a dynamic infrastructure and toolset to advance nanotechnology.
 - Support responsible development of nanotechnology.



The NNI's Nanotechnology Signature Initiatives

- Designed to accelerate innovation in areas of national priority through enhanced interagency coordination and collaboration
 - Address R&D gaps
 - Leverage resources, skills, and activities
 - Provide a forum for ongoing assessment and communication
 - Accelerate commercialization through communities of practice and public-private partnerships
- Intended to be dynamic topic areas will change and evolve over time
- Five current signature initiatives:
 - Nanotechnology for Solar Energy Collection and Conversion
 - Sustainable Nanomanufacturing
 - Nanoelectronics for 2020 and Beyond
 - Nanotechnology Knowledge Infrastructures
 - Nanotechnology for Sensors and Sensors for Nanotechnology

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DOE Basic Energy Sciences User Facilities Over 16,000 Users in FY 2014

Unique research facilities *and* scientific expertise for ultra high-resolution characterization, synthesis, fabrication, theory and modeling of advanced materials



Nanoscale Science Research Centers

- Center for Functional Nanomaterials (BNL)
- Center for Integrated Nanotechnologies (SNL & LANL)
- Center for Nanophase Materials Sciences (ORNL)
- Center for Nanoscale Materials (ANL)
- Molecular Foundry (LBNL)
- Electron-Beam Microcharacterization Centers
 - Merged with NSRCs in FY2015

- * Available to all researchers <u>at no cost</u> for nonproprietary research, regardless of affiliation, nationality, or source of research support
- Access based on external peer merit review of brief proposals
- Coordinated access to co-located facilities to accelerate research cycles
- Collaboration with facility scientists an optional potential benefit
- Instrument and technique workshops offered periodically
- * A variety of on-line, on-site, and hands-on training available
- Proprietary research may be performed at full-cost recovery
- Light Sources
 - Advanced Light Source (LBNL)
 - Advanced Photon Source (ANL)
 - Linac Coherent Light Source (SLAC)
 - National Synchrotron Light Source II (BNL)
 - Stanford Synchrotron Radiation Lightsource (SLAC)
- Neutron Sources
 - High Flux Isotope Reactor (ORNL)
 - Spallation Neutron Source (ORNL)



EBMC-NSRC Merged in FY2015





http://science.energy.gov/bes/suf/user-facilities/nanoscale-science-research-centers/

DOE Nanoscale Science Research Centers (NSRC)

NSRC Mission:

- to enable the external scientific community to carry out high-impact nanoscience projects through an open, peer-reviewed user program, and
- to conduct in-house research to discover, understand, and exploit functional nanomaterials for society's benefit.



- 2,700 NSRC + EBMC Users in 2014
- Users from 45 foreign countries
- 73% are External to host DOE Lab
- 8% are Industry Users

Capabilities Available to Users



NSRC User Institutions Map FY2014



- 2,700 NSRC + EBMC Users in 2014
- Users from 45 foreign countries
- 73% are External to host DOE Lab
- 5% are Industry Users





DOE Nanoscale Science Research Centers

User Facilities for Creating, Characterizing and Understanding Nanomaterials and Systems



US eu bridging nanoEHS research efforts Communities of Research (CoRs)

Databases & Computational Modeling for NanoEHS

Fred Klaessig Pennsylvania Bio Nano Systems, US Barry Hardy, Douglas Connect, Switzerland

Exposure through Product Life

Paul Westerhoff, Arizona State University, US Martie van Tongeren Institute of Occupational Medicine, UK

Risk Management & Control

Vince Castranova, National Institute of Occupational Safety and Health (NIOSH), US Ulla Vogel, National Research Centre for the Working Environment (NRCWE), Denmark

Risk Assessment

Christine Hendren, Duke University, US Janeck Scott-Fordsmand, Aarhus University, Denmark

Characterisation

Anil Patri Food and Drug Administration, US Kenneth Dawson, University College Dublin, Ireland

EcoToxicity

Elijah Petersen, National Institute of Standards & Technology, US Nico van de Brink Wageningen University, Netherlands

Human Toxicity

Gabriele Windgasse, Columbia University, US



http://www.tuwien.ac.at/en/news/news_detail/article/7444/

ano.gov National Nanotechnology Initiative

Thank you.

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