

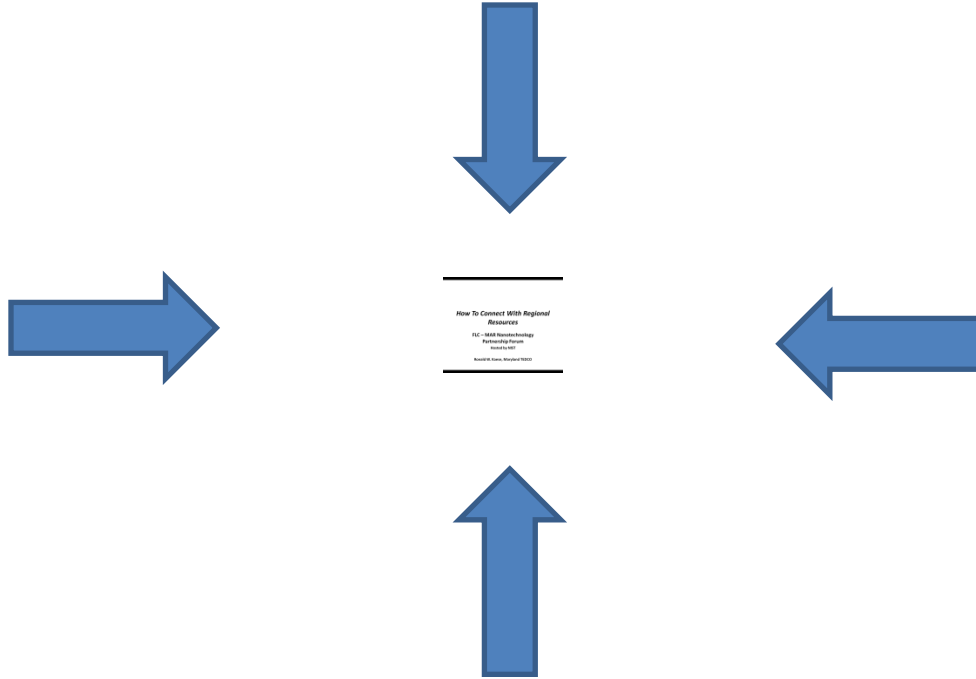


How To Connect With Regional Resources

**FLC – MAR Nanotechnology
Partnership Forum**
Hosted by NIST

Ronald W. Kaese, Maryland TEDCO

A Nano - Presentation



Here it is!

To Connect With Regional Resources

First You Need to Know

- Who do you want to connect with?
 - A specific individual or someone generically described
- What is it that you want?
 - Access to expertise, facilities, equipment, ...
- Where?
 - Are you geographically bound (Pa. funding -> Pa. only)
- When?
 - Any time constraints (proposal submission schedule, ...)
- Why?
 - Collaborative development, Joint proposal submission, ...
- How?
 - Statement of Objective, draft Statement of Work, ...

Regional Resources

- Federal Government
- Academe
- Industry
- Trade Groups and Associations

In the Federal Government

- NIST (our host)
 - Center for Nanoscale Science & Technology (CNST) and the unique opportunity provided by the NanoFab facility
 - Manufacturing Engineering Lab - Next-Generation Nanometrology Program
 - And others such as the Building and Fire Research Lab
- MEMS and Nanotechnology Exchange website

“Most companies who wish to explore the potential of MEMS and Nanotechnology have very limited options for prototyping or manufacturing devices, and have no capability or expertise in microfabrication technology. Few companies will build their own fabrication facilities because of the high cost. A mechanism giving smaller organizations responsive and affordable access to MEMS and Nano fabrication is essential.”

In the Federal Government

- Other federal labs active in nano, to name a few

OSTP

NIST

DOE

EPA

OMB

NASA

NSF

DHS

NIH

DoD

DOT

USDA

DOJ

ITC

CPSC

DOL

FDA

NRC

DOED

DOI

Just think all of them

- Watch for the FLC–MAR Nano Resource Handbook

In the Federal Government

- Some of the interesting activity in our region
 - NCI, Nanotechnology Characterization Lab
 - http://ncl.cancer.gov/about_staff.asp
 - performs and standardizes the pre-clinical characterization of nanomaterials intended for cancer therapeutics and diagnostics developed by researchers from academia, government, and industry
 - NASA LaRC Morphing Aircraft
 - <http://www.nanowerk.com/spotlight/spotid=6067.php>
 - aircraft wing construction will employ ... nanotechnology ... 'smart' materials and actuators that will enable aircraft wings [to change shape for] unprecedented levels of aerodynamic efficiencies and aircraft control

In the Federal Government

- Some of the interesting active in our region
 - NASA GSFC ants <http://ants.gsfc.nasa.gov/>
 - Autonomous Nano-Technology Swarm (ANTS) technology builds on and advances recent trends in robotics, artificial intelligence, and materials processing to minimize costs and maximize effectiveness of space operations
 - NSWC – IHD <http://www.cecd.umd.edu/documents/technical-articles/kavetsky-energy-systms.pdf>
 - nano-based materials can contribute to revolutionary improvements in energetic materials including a paradigm shift in insensitive munitions

In Academe

- A short list of campuses with Nanotechnology programs
 - Johns Hopkins University
<http://initiatives.jhu.edu/nano>
 - University of Maryland
<http://www.nanocenter.umd.edu/about.php>
 - University of West Virginia
<http://wvnano.wvu.edu/news/newfaces.html>
 - Penn State <http://www.gonano.psu.edu/>

In Academe

- A short list of campuses with Nanotechnology programs
 - Virginia Tech
<http://nanopatentsandinnovations.blogspot.com/2010/01/virginia-tech-researchers-developing.html>
 - University of Delaware
<http://www.azonano.com/news.asp?newsID=8486>
 - George Mason University <http://nano.gmu.edu/>
 - Georgetown University Medical Center
<http://gumc.georgetown.edu/news/stories/99554.html>

Again think all of them

In Industry

- A short list of companies with Nanotechnology interests and activities
 - Boeing
 - Northrop Grumman
 - General Dynamics
 - Intel
 - AMD
 - IBM
 - TI

In Industry

- A short list of companies with Nanotechnology interests and activities
 - GM
 - Ford
 - Dixon Valve Company
 - Automated Precision, Inc.
 - KLA-Tencor Corporation
 - Nanometrics, Inc.

In Industry

- A short list of companies with Nanotechnology interests and activities
 - Applied Materials, Inc.
 - ALIS/Zeiss Corporation
 - FEI Company
 - Hitachi High Technologies, USA
 - E. Fjeld Company
 - Zyvex Company

Once again think all of them in technology

In Trade Groups and Associations

- A short list of trade groups and associations with Nanotechnology interests and activities
 - MEMS and Nanotechnology Exchange <http://www.mems-exchange.org/about/>
 - expertise in design and fabrication services to help researchers and companies identify and develop applications using MEMS and Nanotechnology
 - SEMATECH <http://www.sematech.org/>
 - Semiconductor Manufacturing Technology is an association of member companies cooperating pre-competitively in key areas of semiconductor technology

In Trade Groups and Associations

- A short list of trade groups and associations with Nanotechnology interests and activities
 - IEEE Robotics and Automation Society <http://tab.ieee-ras.org/committeeinfo.php?tcid=13>
 - Technical Committee for Micro/Nano Robotics and Automation serves as a focal point to promote interactions and communication and provides leadership for research
 - USCar <http://www.uscar.org/guest/index.php>
 - Umbrella organization of DaimlerChrysler, Ford and General Motors, formed to conduct cooperative, pre-competitive research
 - SAE <http://books.sae.org/book-sp-2177>
 - non-profit educational and scientific organization dedicated to advancing mobility technology

In Trade Groups and Associations

- A short list of trade groups and associations with Nanotechnology interests and activities
 - Robotics Industries Association
 - http://www.robotics.org/content-detail.cfm/Industrial-Robotics-Featured-Articles/Nanotechnology-Robotics/content_id/1043
 - provides information to help engineers, managers and executives apply and justify robotics and flexible automation
 - Material Handling Industry of America (MHIA)
 - <http://www.mhia.org/about>
 - largest U.S. material handling & logistics association
 - ASTM International
 - <http://www.astm.org/ABOUT/aboutASTM.html>
 - voluntary standards development organization

World of Nanotechnology is Being Shaped by ...

- National Nanotechnology Initiative
- Nanotechnology Standards Panel
- U.S. Technical Advisory Group to the Nanotechnology Technical Committee (TS-229) in the International Organization for Standardization (ISO)
- ASTM International technical committee
- ISO Technical Committee 229
- Organization for Economic Cooperation and Development –OECD

To name a few

Nanotechnology Industry

- In case you thought the nanotechnology industry is in the future
 - Nanoscale materials now are in electronic, cosmetics, automotive, and medical products
 - 1,000+ manufacturer-identified nanotechnology based consumer products currently on the market
 - They are among us, all around us, on us, and possibly in us

Nanotechnology Industry

- They are among us, all around us, on us, and possibly in us - for example:
 - Flash memory & computer processors / Advanced Protection SPF 30 Oil / golf club shafts & tennis rackets / binoculars / floor cleaner / anti-bacterial anything / anti-odor moisture resistant perspiration wicking socks, shirts, pants & dresses / pet products / Adhesive for McDonald's burger containers / aluminum foil / sun screen & skin moisturizer creams / toothpaste / muscle building food supplements / energy boosters / toys
- <http://www.nanotechproject.org/inventories/consumer/>



Thank You!

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