The National ATE Center for Nanotechnology Applications and Career Knowledge (NACK) Webinar
Handout September 28, 2012

Remote Access – Integrating High Tech Tools Into Your Classroom

This webinar will deminstrate how you and your students can obtain images like the one below (Spike), while learning the operation and principles of advanced scientific equipment.

PRESENTER:

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WEBINAR OBJECTIVES:

Upon completing this webinar program attendees will…

- **know** what Remote Access is based on its educational value.
- **recall** the materials needed to use Remote Access.
- **feel** comfortable setting up Remote Access sessions with NACK laboratory instructors.
- **recall** where to find resource material (e.g. pre-made labs) to help implement Remote Access lessons into curriculum.
- **be able** to work nanotechnology and Remote Access in to curriculum to serve specific content areas goals.

Typical cost range of 'nano-capable' characterization equipment*:

SEM	$10,000 to $100,000
FESEM	$100,000 to $1,000,000
SPM (AFM)	$25,000 to $100,000
SPM (STM, etc.)	$75,000 to $10,000,000

*Cost of ownership is normally ~10% of initial tool price

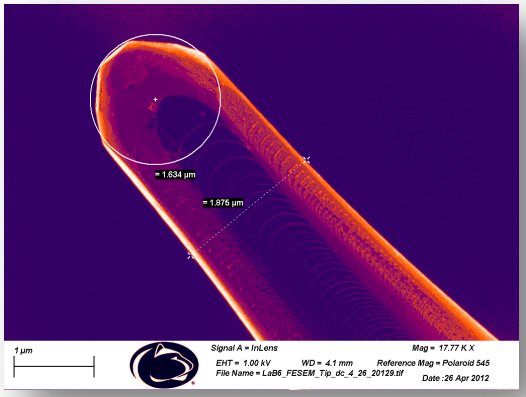
The NACK Center, in the Penn State College of Engineering, is committed to supporting the development of two-year degree programs in micro and nanotechnology across the county by offering academic and educational resources.

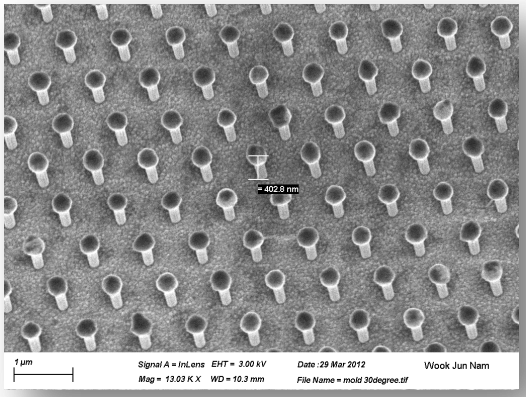
Homework~~work~~FUN!

To further improve your webinar experience we recommend you briefly review the below links and watch some of the videos and peruse the images.

NAKC's nano4me.org Educators webpage
http://www.nano4me.org/browseResources.php

NAKC's nano4me.org Remote Access webpage
http://nano4me.org/remoteaccess.php





GENERAL REMOTE ACCESS AND NANOTECHNOLOGY RESOURCES

Resources: Remote Access

MIT iLabs
http://www.ilabcentral.org/

NASA
http://www.nasa.gov/centers/ivv/about/foremployees_ra.html

National Science Teachers Association
http://www.nsta.org/publications/news/story.aspx?id=59475

Enabling Virtual Access to Latin-America Southern Observatories (EVALSO)
http://www.evalso.eu/evalso/

Remote Access to Instrumental Analysis for Distance Education in Science (2005)
http://www.irrodl.org/index.php/irrodl/article/view/260/404

IEEE--Remote-access education based on image acquisition and processing through the Internet (2003)
http://ieeexplore.ieee.org/xpls/abs_all.jsp?arnumber=1183678

Resources: Government Organizations

National Nanotechnology Initiative
http://www.nano.gov

National Nanotechnology (nano Ed. portal)
http://www.nnin.org/nnin_edu.html

NIOSH Safety and Health Topic: Nanotechnology
http://www.cdc.gov/niosh/topics/nanotech/

EPA Center for Environmental Implications of Nanotechnology
http://www.ceint.duke.edu/

NASA (two separate links)
http://www.nasa.gov/centers/ames/research/technology-onepagers/nanotechnology-landing.html

http://quest.nasa.gov/projects/nanotechnology/resources.html

USDA
http://www.csrees.usda.gov/nanotechnology.cfm

Consumer Product Safety Commission
http://www.nano.gov/node/139

CDC
http://www.cdc.gov/niosh/topics/nanotech/

National Cancer Institute
http://nano.cancer.gov/

National Institute of Standards and Testing
http://www.nist.gov/nanotechnology-portal.cfm

Nano You (European Union)
http://nanoyou.eu/

PENNSTATE 1855

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NSF

Resources: NSF & Educator Affiliates

NSF
http://www.nsf.gov/news/overviews/nano/index.jsp

Nano4me.org for Educators
http://nano4me.org/educators.php

NanoEd Resource Portal at NCLT
http://community.nsee.us/index.php?option=com_content&view=section&id=4&Itemid=234

Nanoscale Information Science Education Network (NISE)
http://www.nisenet.org/

Nano Education Portal of the Nanotechnology Center for Learning and Teaching (NCLT)
http://community.nsee.us/index.phpoption=com_content&view=frontpage&Itemid=227

Nano-Link
http://www.nano-link.org/index.html

Center for Advanced Materials and Nanotechnology
http://www.lehigh.edu/nano/

Southwest Center for Microsystems Education
http://scme-nm.org/

University of Wisconsin-Madison Materials Research Science and Engineering Center

http://mrsec.wisc.edu/MR--Home.php

Maricopa Advanced Technology Education Center
http://www.matec.org/

University of Puerto Rico
http://www.upr.edu/

DiscoverNano (Northwestern University)
http://www.discovernano.northwestern.edu/index_html

Mid-content Research for Education and Learning (NanoLeap)
http://www.mcrel.org/NanoLeap/

NanoZone
http://nanozone.org/index.htm

Making Stuff (Stronger, Cleaner, Smaller, Smarter)
http://www.pbs.org/wgbh/nova/tech/making-stuff.html

Northeast Advanced Technological Education Center (NEATEC)
http://www.neatec.org/

Resources: Private/Independent

The Project on Emerging Nanotechnologies (PEN)
http://www.nanotechproject.org/

Network for Computational Nanotechnology
https://nanohub.org/groups/ncn

PBS for kids
http://pbskids.org/dragonflytv/nano/wans_701.html

Nanooze (kids magazine)
http://www.nanooze.org/

Sciencedaily (Nanotechnology)
http://www.sciencedaily.com/news/matter_energy/nanotechnology/

Small Times
http://www.electroiq.com/nanotech.html

The Nanotechnology Group Inc.
http://www.tntg.org/

Power of Small
http://powerofsmall.org/

Nano Letters (journal)
http://pubs.acs.org/journal/nalefd

American Chemical Society Nanotation (journal)
http://community.acs.org/nanotation/

Nanodictionary
http://www.nanodic.com/

Diigo (nanotechnology web-seminars)
http://www.diigo.com/list/nsdlworkshops/web-seminar-nano

National Council for Advanced Manufacturing
http://www.nacfam.org/

Institute of Nanotechnology
http://www.nano.org.uk/careers-education/education

European Nanotechnology Gateway
http://www.nanoforum.org/

NanoTecNexus
http://www.nanotecnexus.org/nanobionexus

Foresight Institute
http://www.foresight.org/