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Recruitment for Nanotechnology Enrollment

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NACK is the NSF ATE National Center for Nanotechnology Applications and Career Knowledge

The NACK National Center is located at Penn State University

Funded, in part, by a grant from the National Science Foundation.
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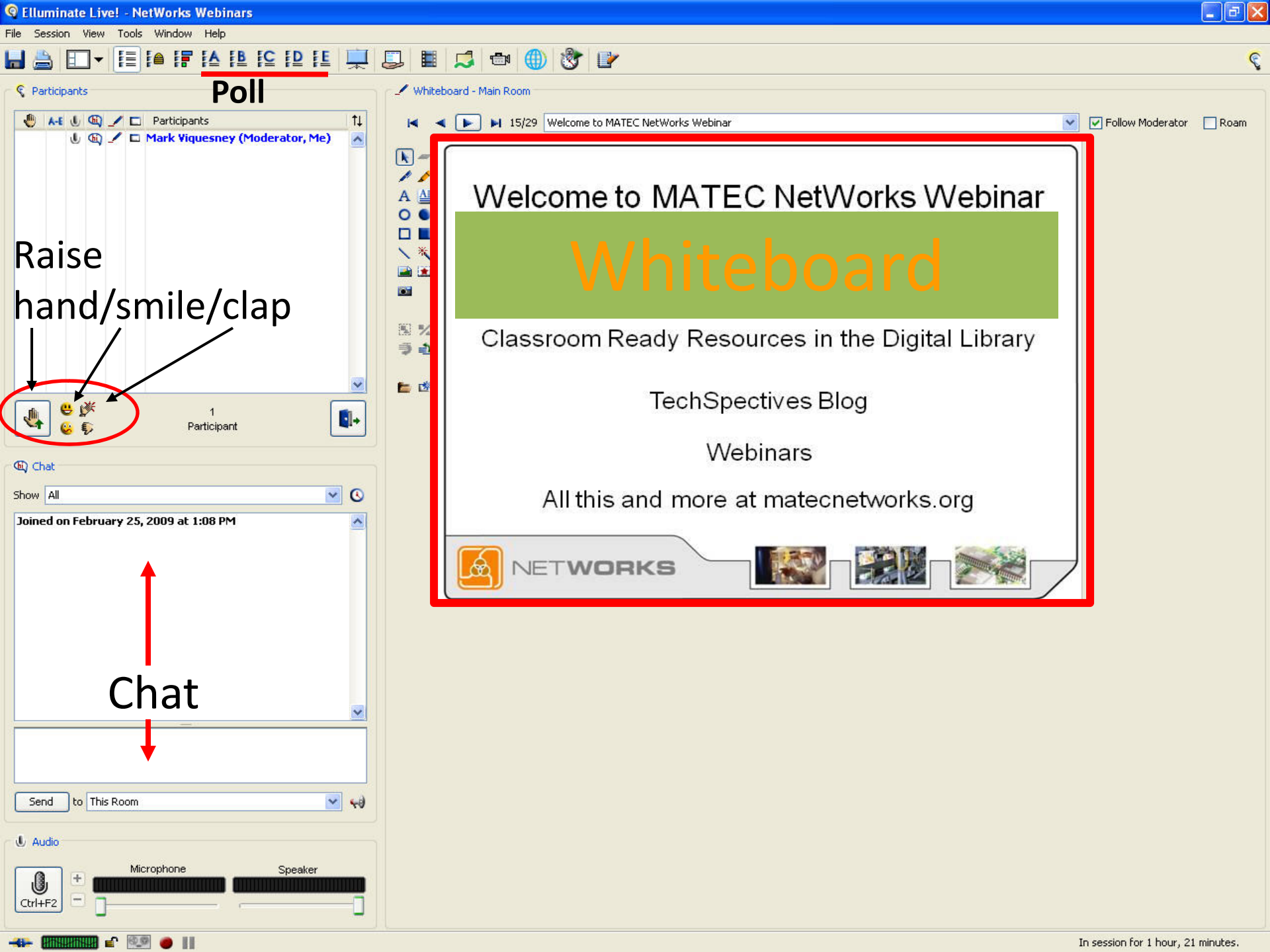
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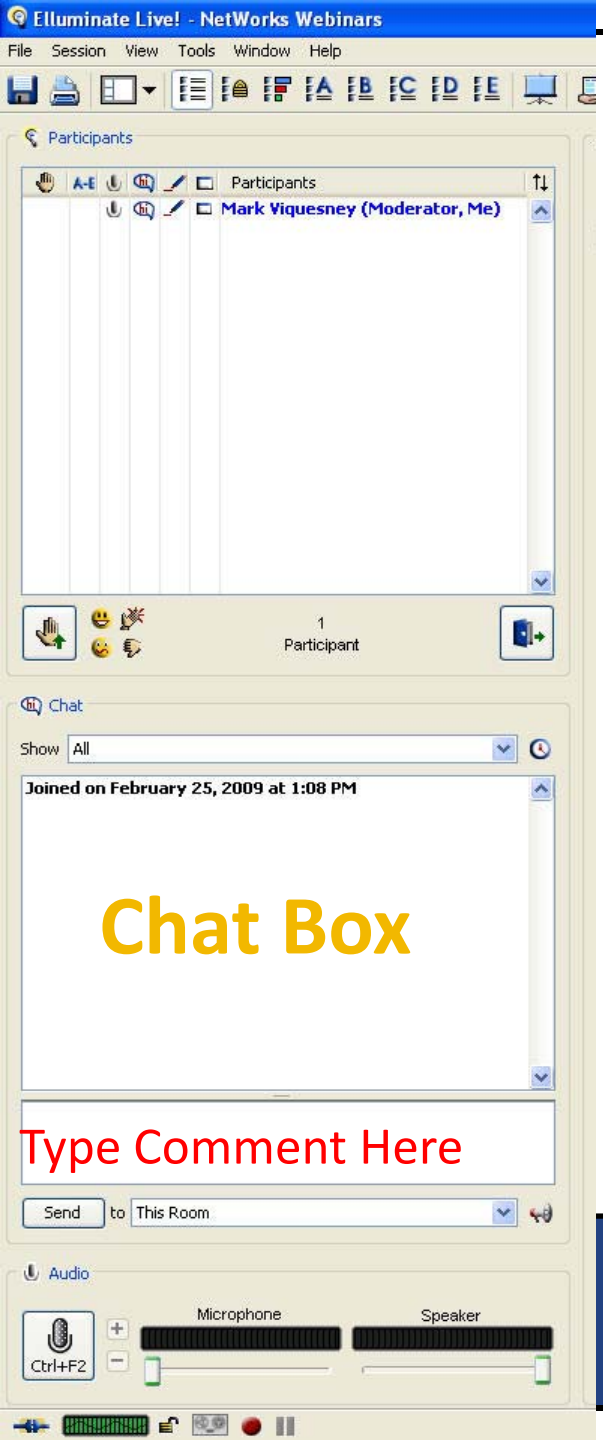


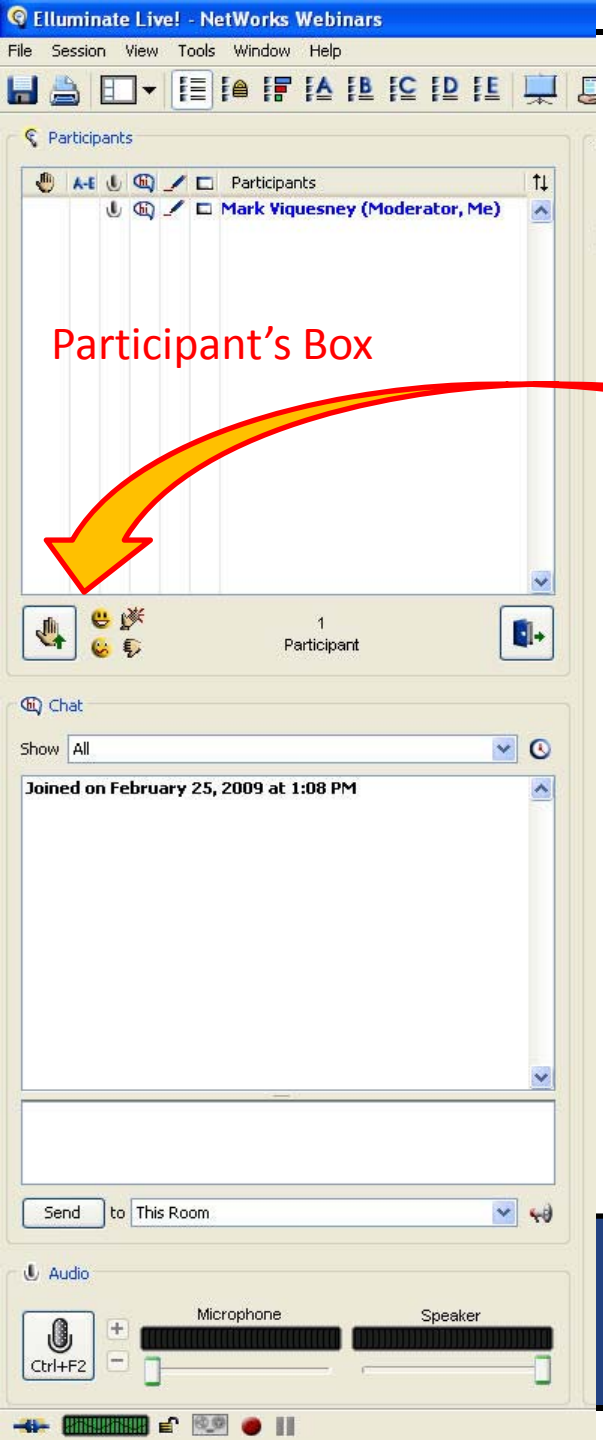
Chat Box

In the **Chat Box**,
please type the name of
your school or organization,
your location,
and how many people are
attending with you today.

Participant's Box

Allows you to non-verbally respond to the presenter's comments.

Participant's Box



Let the presenter know if you like what they say with a smile or clap. Raise a hand if you have a question – and then type it into the chat box.

Poll

Click A-E to take the Poll

This webinar will have a Poll. Please answer: I heard about this webinar through:

A. @matec

B. Email from ETD list serv

C. Email from NACK

D. Friend or colleague

E. Other (please type where in chat box)



NetWorks Webinar Presenter

Jamie G. Houseknecht

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- Research Associate & NMT College Recruitment Coordinator
- Center for Nanotechnology Education and Utilization (CNEU) Regional Center
- Nanotechnology Applications and Career Knowledge (NACK) National Center
- The Pennsylvania State University

Recruitment For Nanotechnology Enrollment

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Outline

- Top Five Problems Encountered
- Reaching the Students
  - The NMT Capstone Semester
- How Does Recruitment Work?
  - School Visits, Advocates, Promotional Material, Website, Follow-Up Material

Outline

- Reaching the Parents
  - Answering Questions and Visits to our facility
- Personal Touch & Recruiter Characteristics
- Top Five Solutions Encountered
- Results
- Conclusion



Question

- What is your official title?

  A. High School Instructor
  B. College Instructor
  C. Recruiter
  D. Other (please give title in the chat window)

Top Five Problems Encountered

1. Limited knowledge of nanotechnology, both students and parents.



Top Five Problems Encountered

2. Students want to know, what is so “cool” about nanotechnology?



Top Five Problems Encountered

3. Difficult to identify key audience, courses, dates and times, when scheduling an event.



Top Five Problems Encountered

4. Student interest is high the day of an event, then tails off.



Top Five Problems Encountered

5. Parents are leery.



Reaching the Students

- What is the NMT Capstone Semester?
  - 18 credit, semester long, intensive immersion in nanoscale processing, materials characterization, and nanotechnology-related equipment training
  - 33 post-secondary institutions across Pennsylvania are partners, sending students for the Capstone Semester



Reaching the Students (cont.)

- What is the NMT Capstone Semester?
  - About 60 Associate and Baccalaureate programs within STEM-related fields of study (currently)
  - Certificate-based option, also available



How Does Recruitment "Work?"

School Visit

Advocates/ Presentation

Promotional Material

Website

Follow-Up Materials

On-site Visit

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School Visits

- Numerous throughout the semester

School Visits (cont.)

- Not reserved to pure recruitment

School Visits (cont.)

- Ability to reach not just a quantity of students, but quality students

How Does Recruitment "Work?"

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Student Advocates

- A student studying nanotechnology, or a graduate of the NMT Capstone Semester

Student Advocates (cont.)

- Assists with the planning of visits, meeting with students, and determining best practices

Questions?

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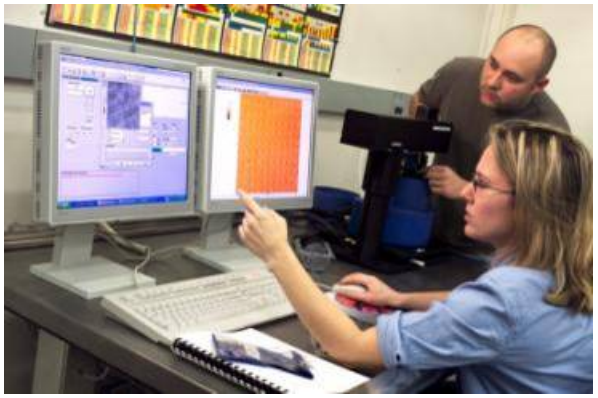
Presentations

- Versatile, in terms of approach and format
  - Mass audience, course specific, department seminar series, club-based, etc.
- I ask the instructor before I visit, “what are you currently studying in your course?”

Presentations (cont.)

Remote Access



From our lab…

…to your classroom!

Sample NMT Capstone Semester Recruitment Slides

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The NMT Capstone Semester

- NMT is an acronym for the following:

  Nanofabrication Manufacturing Technology
- What Does It Mean?
  - Training on **Advanced** Instrumentation
    - More than *$42 million* in equipment
  - **150+** hours of instruction in two cleanroom labs
  - Be able to build **"anything"** on the atomic level
- Work towards a certification, minor, and/or major at institutions across the state

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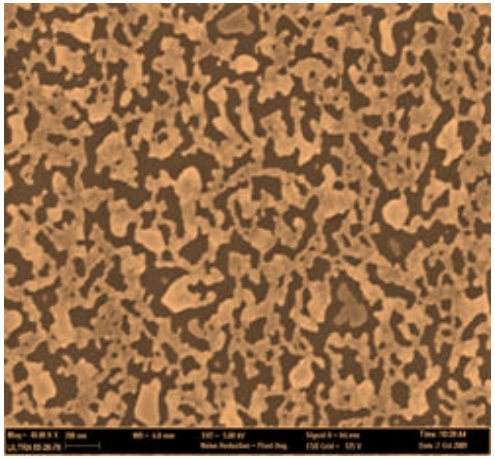
The NMT Capstone Semester

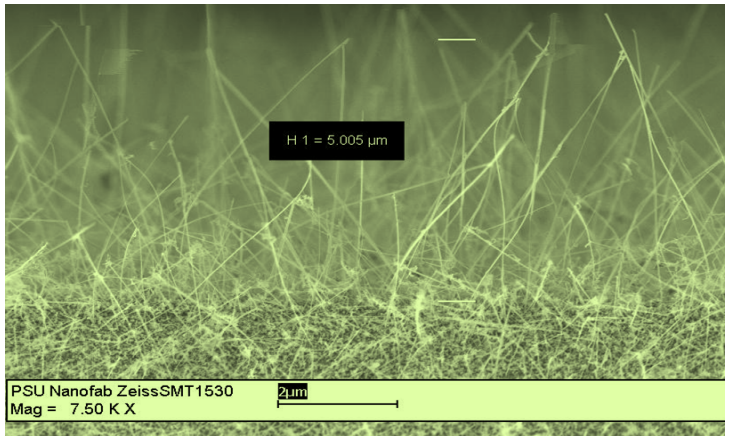
- What Will You Do?
  - Group based learning approach
    - You and 3 to 5 other students for the entire semester
  - Lecture
    - Three hours either 4 or 5 days a week
  - Laboratory
    - Three hours either 4 or 5 days a week, generally
  - Projects
    - Two to three during the semester

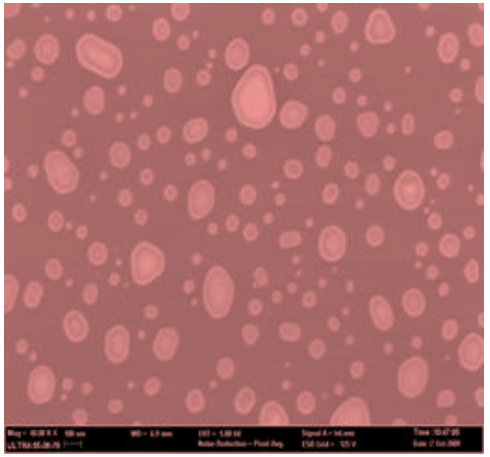


The NMT Capstone Semester

- More on projects…





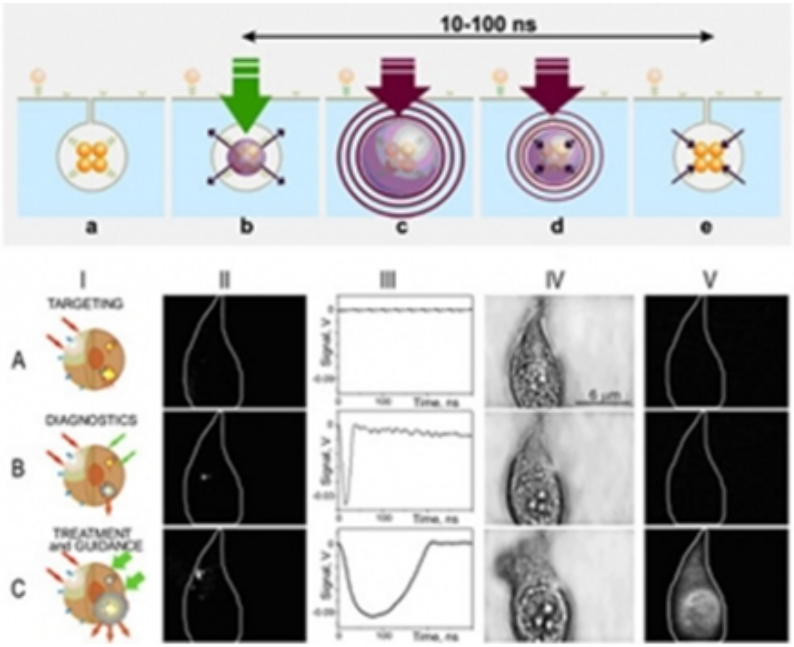


Applications

Example: Lead

Controlled release and intracellular delivery of therapeutic and diagnostic agent into the cells

« Prev | Image 2 of 2



Images Courtesy of:
http://www.physorg.com/news186850199.html

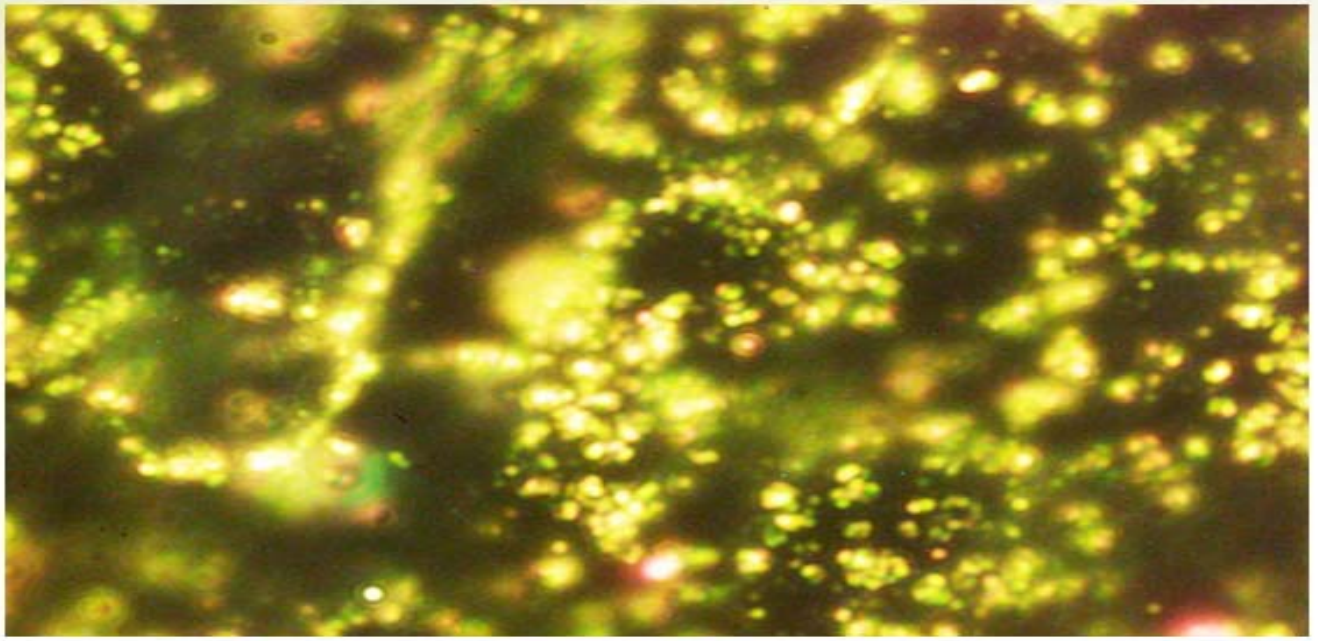


Applications

Example: Gold

Researchers Shine Light on Gold Nanoparticles to Produce Electricity

by Mike Chino, 02/24/10



Not only are these gold nanoparticles gorgeous to look at – they may one day act as microscopic powerhouses for molecular machines. Researchers at the Nano/Bio Interface Center at the University of Pennsylvania recently discovered a novel to way to generate solar power by shining light onto gold nanoparticles. The discovery has far-reaching implications in the realm of nanotechnology, and may open the door for everything from self-powering molecular circuits to super-efficient data storage.

Images Courtesy of:
http://www.inhabitat.com/2010/02/24/researchers-shine-light-on-gold-nanoparticles-to-produce-electricity/

Questions?

How Does Recruitment "Work?"

School Visit

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Promotional Material

Website

Follow-Up Materials

On-site Visit

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Brochure and DVDs

- "Take Matter Into Your Own Hands"
- Very informative and engaging
- Written with the student in mind

How Does Recruitment "Work?"

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On-site Visit

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Website

- http://www.nano4me.org/PaNMT
  - Video Testimonials
  - Social Networking
  - Contact Form



How Does Recruitment "Work?"

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Packets

- Sent out after requesting information on our website
- Information related to jobs, further education, contact information, center publicity, etc.

Letters

- Thank you Terry Bartelt at Fox Valley Technical College!
  - Written to each student after…
    - Requesting information on our website
    - After one-on-one e-mail/phone exchanges
    - After visiting our facility



Dear Ms. Anita Nanodegree:

I recently received an e-mail indicating your interest in nanotechnology education opportunities. I was glad to read about your interest in the field of nanotechnology, and more importantly the Nanofabrication Manufacturing Technology Capstone Semester, offered here at Penn State University.

I am certain that should you decide to pursue these interests further, the Capstone Semester would be a tremendous experience for you. Also, feel free to visit our website again at the following web link; (http://www.nano4me.org/PaNMT) for some further information pertaining to the field, video testimonials from graduates, and many more items that may help you in making your decision on how best to achieve this goal.

Lastly, do not hesitate to contact me with any further questions. I would be more than pleased to answer them for you. My contact information can be found below, or on the business card within the envelope. Also, if you and your family would like to visit and tour our facilities here at Penn State University, namely the Teaching Cleanroom Laboratory, or the Penn State University Nanofab, please let me know.

Thank you again for your interest and I look forward to hearing from you,

Jamie G. Houseknecht

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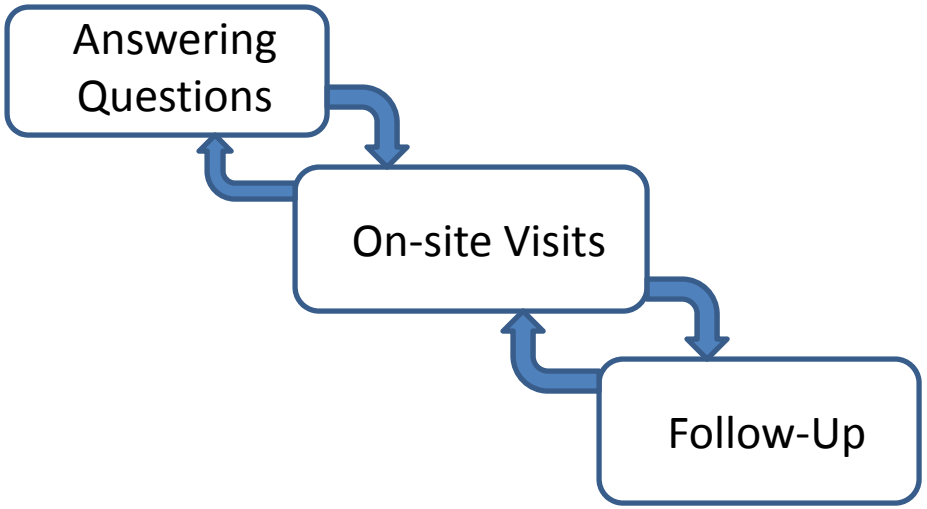
Questions?

Reaching the Parents



Reaching the Parents (cont.)

- *"My daughter told me about your presentation, and how much she enjoyed it; what the heck is nanotechnology?"*
- *"Why should my son study nanotechnology?"*
- *"I never heard of this field, is it even viable?"*



Answering Questions

- Being honest
- Examples “they” can relate to, and to the student
- Thinking on “another” level

How Does Recruitment "Work?"

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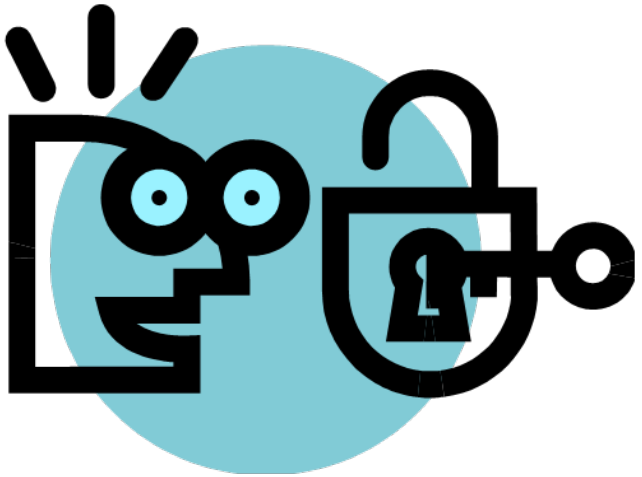
Visits to Our Facility

- Witnessing the academic environment answers many of these questions also

Visits to Our Facility

- "Lock and key" concept;
  - They readily make the connection
  - Nothing like being there



Questions?

How Does Recruitment "Work?"

School Visit

Advocates/
Presentation

This doesn't matter if you do not have…

Website

Follow-Up Materials

On-site Visit



Personal Touch

- NMT Capstone Semester Graduate (Spring 2003)
  - "I have experienced it as a student."
- NMT Teaching Assistant (Summer 2003 & 2005)
  - "I have experienced it as an educator."



Personal Touch (cont.)

- Nanobiotechnology industry experience
  - "I have worked within the 'industry', elsewhere."
- Research experience at three other institutions
  - "I have worked within academia elsewhere."



Recruiter Characteristics

- Honesty
  - "It helped me, why not you?"



Recruiter Characteristics (cont.)

- Straight-shooter
  - "When you graduate, you can get a job in…"



Recruiter Characteristics (cont.)

- Forthright
  - "It can benefit you in the following ways…"

Recruiter Characteristics (cont.)

- Strong Work Ethic
  - "If you are not prepared to contribute, do not come."



Questions?

Top Five Solutions Encountered

1. Limited knowledge of nanotechnology, both students and parents.

<u>Solution:</u> On-site visits, keeping content “fresh” and current, having qualities as stated earlier.



Top Five Problems Encountered

2. Students want to know, what is so “cool” about nanotechnology?

Solution: Keeping content “fresh” and current, changing layout of presentation per visit, constant review of literature resources, web research, etc.

Top Five Problems Encountered

3. Difficult to identify key audience, courses, dates and times, when scheduling an event.

Solution: Student advocates have helped to increase general awareness, as well as be point-of-contacts behind the scenes.



Top Five Problems Encountered

4. Student interest is high the day of an event, then tails off.

Solution: Website and brochure overhaul, social networking, packet and other follow-up materials keep the interest up until an on-site tour takes place.



Top Five Problems Encountered

5. Parents are leery.

Solution: Meeting with the parents face-to-face, inviting them to join an on-site tour of our facilities.



Results

- The NMT Capstone Semester…
  - Has witnessed higher semester-to-semester enrollment, versus that of the past
  - Has increased its total yearly average enrollment by 24% in just one year
  - Expects to have the highest enrollment of any semester, this summer, 2010



Questions?

Conclusion

- Many students are interested in STEM-related fields; I find that many need help realizing that they **can** do it, in order to take it to the **next** level.
- Having an individual well-versed in the field, with industry experience, goes a **long** way.



Conclusion (cont.)

- Contact me with questions, comments, ideas, assistance, etc.
  - I would be thrilled to help!

Jamie G. Houseknecht

juh147@engr.psu.edu

814-865-5285

- Thank You!

Questions?

How Can We Better Serve You?

Whether you are joining us live or watching the recorded version of this webinar, please take 1 minute to provide your feedback and suggestions.

http://questionpro.com/t/ABkVkZHP3T



Thank you for attending

NACK's Webinar

Recruitment for Nanotechnology Enrollment

You may find additional resources and free curriculum for nanotechnology at www.nano4me.org and click Educators.



Upcoming NACK Workshops

April	12-14	Hands on Intro to Nano Workshop
May	10-13	Train the Trainer (211-212)
Aug.	9-12	Train the Trainer (213-214)
Oct.	4-7	Train the Trainer (211-212)
Nov.	16-18	Hands on Intro to Nano Workshop

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Webinar Recordings

To access this recording or slides, visit
www.matecnetworks.org,
Keyword Search:
"NACK webinar Recruitment for Nanotechnology Enrollment"

You may also find over 100 resources in the NetWorks Digital Library by using the Keyword Search: nanotechnology

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NACK Upcoming Webinars

April 23: Building a Nano Lab: Equipment and Program Overview

May 27: Nanotechnology: Applications in Energy

Visit ***www.nano4me.org*** and click Educators and then the Webinar tab for more details about these and other upcoming webinars.

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Certificate of Participation

If you attended the live version of this

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certificate of participation, please email

Kristen Robinson at kjrobinson@engr.psu.edu



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