Sixth Sustainable Nanotechnology
Organization Conference 2017
Sunday, Nov. 5 – Tuesday, Nov. 7
Los Angeles, California

## Nano Education Session November 5, 2017



## Nano Education for a Global World

J Nanopart Res (2013) 15:1946 DOI 10.1007/s11051-013-1946-1

### PERSPECTIVES

The new world of discovery, invention, and innovation: convergence of knowledge, technology, and society

Mihail C. Roco · William S. Bainbridge

**DE GRUYTER** 

DOI 10.1515/ntrev-2013-0039 — Nanotechnol Rev 2014; 3(2): 211-221

Nanotechnology education

Ineke Malsch\*

## Nano-education from a European perspective: nano-training for non-R&D jobs







Lifelong Learning Programme





## Nano Education Literature

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**Integrating Nanoscience into the** Classroom: Perspectives on Nanoscience **Education Projects** 

Andrew Greenberg\*

Nanoscale Science and Engineering Center, Institute for Chemical Education, and Department of Chemistry, University of Wisconsin-Madison, Madison, Wisconsin 53706

ABSTRACT The National Nanotechnology Initiative has motivated substantial growth in nanoscience and nanotechnology research in the United States and beyond. One of the central workforce, and the supporting infrastruc-

central missions of the NNI is to "develop and sustain educational resources, a skilled



www.acsnano.org

### Nanotechnology Education for the Global World: Training the Leaders of Tomorrow

Joshua A. Jackman, Dong-Joon Cho, Jaywon Lee, Jia Ming Chen, Flemming Besenbacher, Dawn A. Bonnell, Mark C. Hersam, Paul S. Weiss, Jia Ming Chen, And Nam-Joon Cho



# Sustainable Nano Education Building Blocks

Online Resources



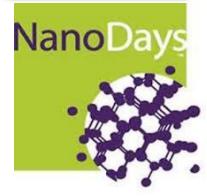




Nano Education Modules



Modules developed at ERCs and materials research centers Nano Education
Activities



Nano-labs, problem-based learning

### Nano Education Future

- A Nano Education Journal
- Nanotechnology certificates
- Nanotechnology vocational training programs
- Nanotechnology-centered degrees
- The role of SUS Nano at the interface of nanoscience and environmental engineering and science

## Leadership from SUS Nano Community

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Nanotechnology	Natural sciences	Governance/management skills	Practical skills  Media training	
Nanoparticles in waste	Natural science education	Legal background		
New areas such as grapheme, third/	Safety	Regulation	Communication	
fourth generation nanomaterials	Exposure mechanisms	Management of chemicals		
Nanorisk assessment	Sustainable production	Environmental diplomacy		
Nanotoxicology	Physical properties	Management		
Nanomaterials	Physics/mathematics equations	Risk communication		
Nanoscience	Climate change	Science policy		
Legal and social aspects of nanotechnology	Genetically modified organisms (GMOs)			
Nanotechnology for journalists	Synthetic biology			



## 2A: Education Session-I

2A Education II	
1:00 Introduction	Navid Saleh
1:10 Nanoeducation On Many Levels: Case Studies Spanning Informal Science Education to Undergraduate Research to Graduate Studies	Vicki Grassian
1:40 A Nano-Enabled Water Treatment Laboratory To Teach Earth Sciences And Chemistry Through Nanotechnology	Francois Perreault
2:00 Nano Tools Course at the University of Rhode Island	Vinka Craver
2:20 Managing Expectations for Graduate Students Involved in Nano-Related Sustainability Research	David Jassby
2:40 Vault Nanoparticles for Water Treatment: Experimental and Educational Approaches	Meng Wang
3:00 Break	



## 2B: Education Session-II

В		Education II	
	3:30	Increasing the Reach of Nanotechnology and Sustainability Content in Multiple Educational Environments	Deb Newberry
	3:50	Nanomaterials and the Safer-By-Design approach for the next generation: Economic and regulation issues with the case of Amipaint.	Camille de Garidel-Thoron
	4:10	Gauging Public Perceptions on the Economic and Ethical Implications of Food Nanotechnology	Yajuan Lu
	4:30	Sustainable Nanotechnology as a Platform for Interdisciplinary and Holistic Graduate Education	Matthew Chan
	4:50	Case Study on Nano-education Course Development: Sustainable Material Applications and Reuse in Treatment (SMART) of Water and Environment	Indranil Chowdhury
	5:10	PARMA NANO-DAY: an International school for young researchers in "nano"	Elena Maestri
	5:30	An Active Learning Based Theory and Laboratory Course for Nano Education	Navid B. Saleh

