



# Nanoinformatics

## 2013

# Informatics for Nanomanufacturing

*Data—Tools—Sharing*

# Welcome!

Mark Tuominen - National Nanomanufacturing Network



# Nanoinformatics

## 2013

### Workshop Purpose

- Highlight activities in the “*informatics + nanomanufacturing*” space
- Learn of related projects and initiatives
- Identify opportunities, goals, gaps, and barriers
- What is compelling? — What data? What tools?
- Discuss specifics of next steps and build report (focused supplement to Nanoinformatics 2020 Roadmap)



# Nanoinformatics 2020 Roadmap

April 2011

**2020 Roadmap – An initial comprehensive overview and outlook on nanoinformatics**

## Contents

- Definition
- Vision
- Current activities
- Crosscutting issues
- Opportunities
- Future projects

<http://eprints.internano.org/607/>



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## **Nanoinformatics**

Nanoinformatics is the science and practice of determining which information is relevant to the nanoscale science and engineering community, and then developing and implementing effective mechanisms for collecting, validating, storing, sharing, analyzing, modeling and applying that information.

*- from Nanoinformatics 2020 Roadmap*



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## **Efficient Nanoinformatics Recognizes the Different Perspectives of Diverse Domains**

Physical Properties

Applications Development

Modeling and Simulation

Engineering

Manufacturing

Materials

Education

Biological Properties

EHS

Business



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### **Nanomanufacturing Informatics**

#### ***Streamlining product and manufacturing design***

- Nanomanufacturing process-property relationships
- Nanomaterial properties data - with statistics and metadata
- Experts and facilities
- Suppliers of materials and tools
- Documentary standards
- Design tools
- Federation of data and information



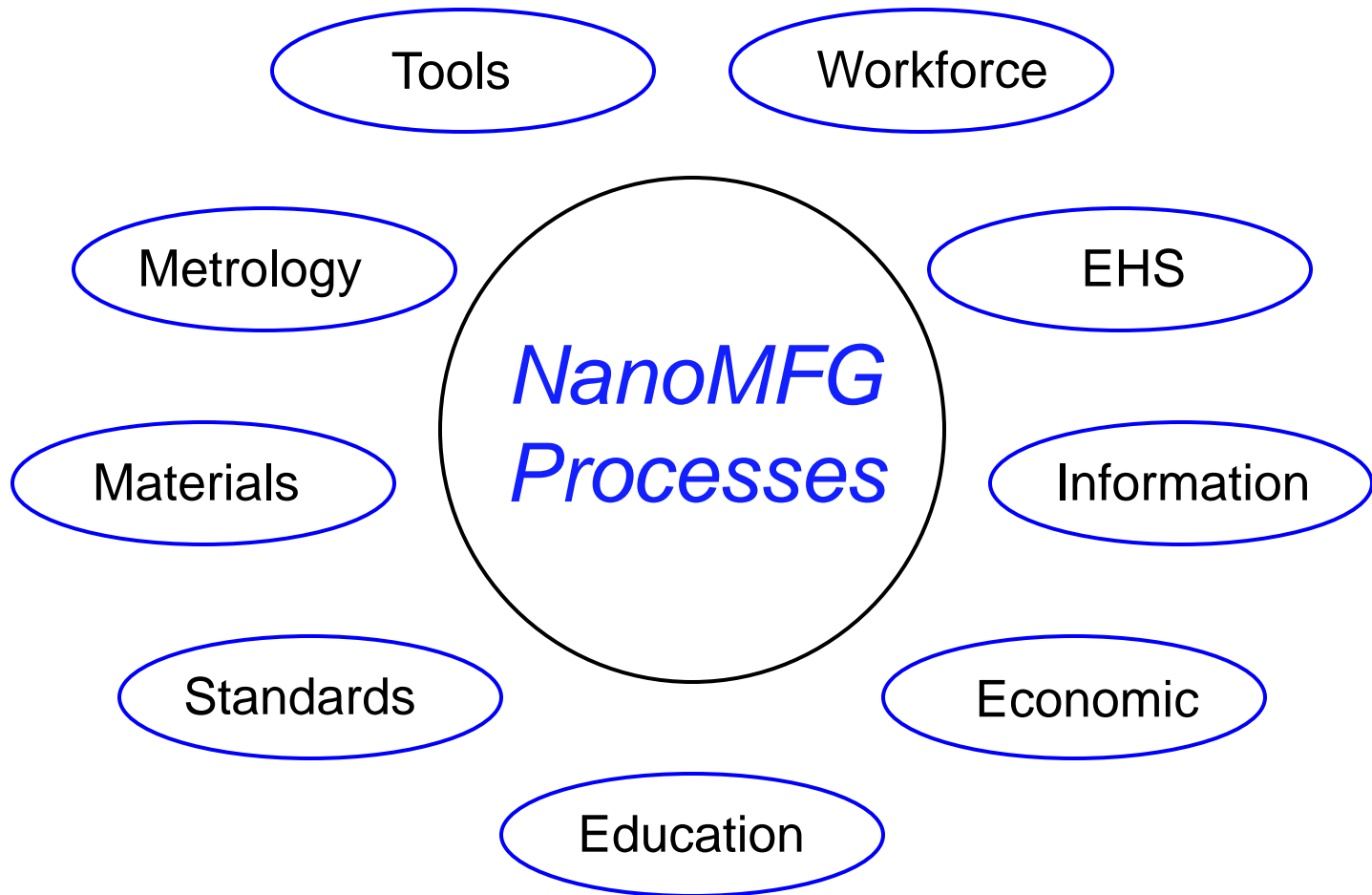
Funded by NSF

An open access network for the advancement of ***nanomanufacturing*** R&D and education

- Network of centers with a *nanomanufacturing* focus
- Cooperative activities (*workshops, roadmapping*)
- Information and informatics (*InterNano.org*)

Striving for equal participation from academic, gov't agencies, & industry

# Nanomanufacturing Enterprise



All factors are needed for effective implimentation





# Nanoinformatics

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### **Informatics for Nanomanufacturing: Some factors**

- Informatics to speed development time and lower cost
- What has been developed and how mature is it?
- Help to identify what data, analysis, and testing has been done
- Some data can be public, others will necessarily be private
- Manufacturing requires satisfying multiple requirements
- Basic research experiments and Design-of-Experiment data
- First principles modeling and statistical modeling
- We need you to raise important issues. Past experiences help.

The top half of the slide features a dark green background with a network of glowing yellow and cyan nodes connected by thin lines, resembling a molecular or data network. The title "Nanoinformatics" is written in a large, white, sans-serif font, centered at the top. Below it, the year "2013" is also centered in a similar white font.

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## Identifying Opportunities and Needs

- Compelling data and tools
- Factors that make the data useful and searchable
- Sharing strategies
- Mapping terminologies and ontologies
- Mechanisms for strong industry involvement

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# Nanoinformatics 2013

## **Conference Program**

<http://nanoinformatics.org/2013/agenda>

# Nanoinformatics 2013

## Workshop Support



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