

International Symposium on
**ASSESSING THE ECONOMIC IMPACT
OF NANOTECHNOLOGY**

AGENDA: Tuesday, March 27, 2012

8:00 – 8:30 **Registration and Coffee**

8:30 – 9:00 **Welcoming Addresses**

Alan I. Leshner, CEO, American Association for the Advancement of Science, and Executive Publisher of *Science*, United States

Tom Kalil, Deputy Director for Policy, Office of Science and Technology Policy, Executive Office of the President, United States

Ken Guy, Head of the Science and Technology Policy Division, OECD

Session 1: Setting the Scene

Moderator: **Richard Johnson**, Chairman, BIAC Committee on Biotechnology, and CEO, Global Helix LLC, United States

9:00 – 9:20 **Presentation 1**

Françoise Roure, OECD Working Party on Nanotechnology Chair, Head of the Technology and Society Section, Ministry of Economy, Finance and Industry, France

9:20 – 9:40 **Economic Rationales and Strategies for an Advanced Manufacturing Sector**

Gregory Tassey, Chief Economist, National Institute of Standards and Technology, United States

9:40 – 10:00 **Challenges for Governments in Evaluating Return on Investment from Nanotechnology and its Broader Economic Impact – Overview of Background Paper 1**

Mark Morrison, Chief Executive Officer, Institute for Nanotechnology, United Kingdom

10:00 – 10:30 **Break**

10:30 – 12:30 **Government Panel Discussion**

Moderator: **Françoise Roure**, OECD Working Party on Nanotechnology Chair, Head of the Technology and Society Section, Ministry of Economy, Finance and Industry, France

- **Adalberto Fazzio**, Deputy Secretary and Coordinator of Nanoscience and Nanotechnology Secretariat for Technological Development and Innovation, Ministry of Science, Technology and Innovation, Brazil
- **Herbert von Bose**, Director Industrial Technologies, DG Research and Innovation, European Commission
- **G. V. Ramaraju**, Head of Nanotechnology Initiatives Division, Ministry of Communications and Information Technology, India
- **Naoya Kaneko**, Fellow of the Center for R&D Strategy (CRDS), Japan Science and Technology Agency, Japan
- **Joseph Molapisi**, Manager for Emerging Research Areas, Department of Science & Technology, South Africa
- **Altaf Carim**, Assistant Director for Nanotechnology, Office of Science and Technology Policy, Executive Office of the President, United States

12:30 – 1:30 **Lunch**



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Session 2: Exploring the Qualitative Dimensions of the Economic Impact of Nanotechnology

Moderator: **Steffi Friedrichs**, Director General, Nanotechnology Industries Association, Belgium

- 1:30 – 1:50 **Finance and Investor Models in Nanotechnology – Overview of Background Paper 2**
Pekka Koponen, CEO, Spinverse Ltd., Finland
- 1:50 – 2:10 **Economic Contributions of Nanotechnology to Green and Sustainable Growth – Overview of Background Paper 3**
Philip Shapira, Professor, Manchester Institute of Innovation Research, University of Manchester, United Kingdom, and School of Public Policy, Georgia Institute of Technology, United States
- 2:10 – 2:30 **Discussion**
- 2:30 – 2:45 **Introduction to Parallel Breakout Sessions**
Steffi Friedrichs, Director General, Nanotechnology Industries Association, Belgium
- 2:45 – 4:45 **Parallel Breakout Sessions**
- **Transportation & Aerospace – Cabot Lab**

 Co-chair: **Steffi Friedrichs**, Director General, Nanotechnology Industries Association, Belgium
 Co-chair: **Michael Meador**, Nanotechnology Program Manager, National Aeronautics and Space Agency, United States
 - Speaker: **Travis Earles**, Advanced Materials Nanotechnology Initiatives, Lockheed Martin, United States
 - Speaker: **Francis Peters**, Materials and Raw Materials Project Director, Michelin Worldwide, France
 - **Nanomedicine - Auditorium**

 Co-chair: **Piotr Grodzinski**, Director, Nanotechnology for Cancer Programs, National Cancer Institute, United States
 Co-chair: **Alexander Pogany**, Federal Ministry for Transport, Innovation and Technology, Austria
 - Speaker: **Lawrence Tamarkin**, President and CEO, CytImmune, United States
 - Speaker: **Joerg Vienken**, Vice President Biosciences, Fresenius Medical Care, Germany
 - **Electronics – Room 207**

 Co-chair: **TBA**
 Co-chair: **Mihail Roco**, Senior Advisor for Nanotechnology, National Science Foundation, United States
 - Speaker: **Michael Fancher**, Associate Professor of Nanoeconomics, University at Albany – SUNY, United States
 - Speaker: **Jose Rivas**, Director General, International Iberian Nanotechnology Laboratory, Portugal
 - **Energy – Abelson Room**

 Co-chair: **Ingo Höllein**, Deputy Director of New Materials, Nanotechnology, Federal Ministry of Education and Research, Germany
 Co-chair: **Harriet Kung**, Director, Office of Basic Energy Sciences, Department of Energy, United States
 - Speaker: **Seth Coe-Sullivan**, Founder and Chief Technology Officer, QD Vision, United States
 - Speaker: **Hilary Flynn**, Senior Analyst, Lux Research, United States

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- **Advanced Materials – Haskins Room**

Co-chair: **Markku Lämsä**, Senior Technology Adviser, TEKES, Finnish Funding Agency for Technology, Finland

Co-chair: **World Nieh**, National Program Leader, Forest Products and Wood Utilization, U.S. Forest Service R&D, United States

- Speaker: **Reinhold Crotogino**, President and CEO, ArboraNano, Canada
- Speaker: **Peter Krueger**, Head of Bayer Working Group Nanotechnology, Bayer Material Science AG, Germany



- **Food & Food Packaging – Revelle Room**

Co-chair: **Knut Berdal**, Senior Advisor, Department of Food Policy, Ministry of Agriculture and Food, Norway

Co-chair: **Hongda Chen**, National Program Leader, Bioprocessing Engineering/Nanotechnology U.S. Department of Agriculture-National Institute of Food and Agriculture, United States

- Speaker: **Victor Bertucci Neto**, Embrapa Instrumentacao Agropecuria, Brazil
- Speaker: **Kalpana Sastry**, Principal Scientist, Agricultural Research Systems Management and Policies Division, National Academy of Agricultural Research Management, India

4:45 – 6:00

Report Back and Synthesis Conversation

Moderator: **Steffi Friedrichs**, Director General, Nanotechnology Industries Association, Belgium

6:00

Reception



AGENDA: Wednesday, March 28, 2012

8:00 – 8:30 **Coffee**

8:30 – 9:00 **Nanotechnology Research Directions for Societal Needs in 2020**
Mihail Roco, Senior Advisor for Nanotechnology, National Science Foundation, United States

Session 3: Nanotechnology, Economics, and Regulations

Moderator: **Lynn Bergeson**, Bergeson & Campbell, P.C., United States

9:00 – 9:20 **International Standards Supporting Nanotechnology Development**
Ajit Jillavenkatesa, Senior Standards Specialist, Global Standards and Information Group, National Institute of Standards and Technology, United States

9:20 – 9:40 **Socioeconomic Issues**
Douglas Robinson, Managing Director, teQnode, France

9:40 – 10:00 **The Hare and the Tortoise: Nanotechnologies and the Race for Regulatory Certainty**
Diana Bowman, Assistant Professor, Risk Science Center and the Department of Health Management and Policy, University of Michigan, United States

10:00 – 10:30 **Discussion**

10:30 – 11:00 **Break**

Session 4: Science of Science and Innovation Policies Applied to Nanotechnology

Moderator: **Charles Wessner**, Director, Technology Innovation and Entrepreneurship, The National Academies, United States

11:00 – 11:20 **Redesigning Science & Innovation System and Nanotechnology**
Tateo Arimoto, Director-General of Research Institute of Science and Technology for Society (RISTEX), and Deputy Director-General, Center for R&D Strategy (CRDS), Japan Science and Technology Agency (JST), Japan

11:20 – 11:40 **Putting the Science in Science Measurement: The Case of Nanotechnology**
Julia Lane, Program Director, Science of Science and Innovation Policy, National Science Foundation, United States

11:40 – 12:00 **The Lattes platform in the Brazilian ST&I system**
Esper Cavalheiro, Advisor to the President of the Centre for Strategic Management and Studies, Brazil

12:00 – 12:30 **Discussion**

12:30 – 1:30 **Lunch**

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Session 5: Approaches (New and Established) to Assess the Effects of Technology Investment

Moderator: **Stephen Campbell**, Group Leader, Impact Analysis Group of the Technology Innovation Program, National Institute of Standards and Technology, United States

- 1:30 – 1:50 **A Conceptual and Methodological Framework for Statistics on Nanotechnology and other Technological Areas**
Leonid Gokhberg, First Vice-Rector, National Research University “Higher School of Economics” (HSE), and Director, HSE Institute for Statistical Studies and Economics of Knowledge, Russian Federation
- 1:50 – 2:10 **Tools and Metrics Available to Assess the Economic Impact of Nanotechnology, and Models That Have Been Applied to Assess Economic Impact of Other Technologies – Overview of Background Paper 4**
Ben Walsh, Senior Consultant, Oakdene Hollins, United Kingdom
- 2:10 – 2:30 **Discussion and Introduction to Parallel Breakout Sessions**

Session 6: Exploring the Quantitative Dimension of the Economic Impact of Nanotechnology

- 2:30 – 4:30 **Parallel Breakout Sessions**
- **Transportation & Aerospace – Cabot Lab**
 Co-chair: **Minoo Dastoor**, Senior Advisor, National Aeronautics and Space Agency, United States
Co-chair: **Steffi Friedrichs**, Director General, Nanotechnology Industries Association, Belgium
 - Speaker: **Lance Criscuolo**, President, Zyvex Technologies, United States
 - Speaker: **Vincent Caprio**, Executive Director, NanoBusiness Commercialization Association, United States
 - **Nanomedicine - Auditorium**
 Co-chair: **Piotr Grodzinski**, Director, Nanotechnology for Cancer Programs, National Cancer Institute, United States
Co-chair: **Witold Lojkowski**, Professor from the Institute of High Pressure Physics, Polish Academy of Sciences, Poland
 - Speaker: **Richard Clinch**, Director of Economics Development, Jacob France Institute, University of Baltimore, United States
 - Speaker: **Bertrand Loubaton**, Director Pharmaceutical & Academic Collaboration, GE Healthcare & Chair of the European Technology Platform Nanomedicine (ETPN), France
 - **Electronics – Room 207**
 Co-chair: **TBA**
Co-chair: **Mihail Roco**, Senior Advisor for Nanotechnology, National Science Foundation, United States
 - Speaker: **Jung Il Lee**, Director, Heritage S&T Centre Korea Institute of Science and Technology, Korea
 - Speaker: **Celia Merzbacher**, Vice President–Innovative Partnerships, Semiconductor Research Corporation, United States

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 - **Energy – Abelson Room**
 - Co-chair: **Ingo Höllein**, Deputy Director of New Materials, Nanotechnology, Federal Ministry of Education and Research, Germany
 - Co-chair: **Andrew Schwartz**, Program Manager, Office of Basic Energy Sciences, Department of Energy, United States
 - Speaker: **Oleg Karasev**, Deputy Director, International Foresight Centre, HSE Institute for Statistical Studies and Economics of Knowledge, Russian Federation
 - Speaker: **TBA**
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 - **Advanced Materials – Haskins Room**
 - Co-chair: **Markku Lämsä**, Senior Technology Adviser, TEKES, Finnish Funding Agency for Technology, Finland
 - Co-chair: **World Nieh**, National Program Leader, Forest Products and Wood Utilization, U.S. Forest Service R&D, United States
 - Speaker: **Kristen Loughery**, Economist, Office of Pollution Prevention and Toxics, Environmental Protection Agency, United States
 - Speaker: **Seth Snyder**, President, Council for Chemical Research, United States
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 - **Food & Food Packaging – Revelle Room**
 - Co-chair: **Knut Berdal**, Senior Advisor, Department of Food Policy, Ministry of Agriculture and Food, Norway
 - Co-chair: **Hongda Chen**, National Program Leader, Bioprocessing Engineering/Nanotechnology U.S. Department of Agriculture-National Institute of Food and Agriculture, United States
 - Speaker: **Lynn Bergeson**, Bergeson & Campbell, P.C., United States
 - Speaker: **Rosalie Ruegg**, Director, TIA Consulting, United States

Session 7: What We Learned

Moderator: **Stephen Campbell**, Group Leader, Impact Analysis Group of the Technology Innovation Program, National Institute of Standards and Technology, United States

4:30 – 5:00 **Report Back and Synthesis Conversation**
Breakout Session Co-Chairs

5:00 – 5:30 **Concluding Remarks and Next Steps**
Sally Tinkle, Deputy Director, National Nanotechnology Coordination Office, United States
Ken Guy, Head of the Science and Technology Policy Division, OECD