

Wednesday 6 April

- 09h00 Industry's views on research – Gerard Matheron, MEDEA+, France
- 09h30 New development for IT – Patrice Senn, TECH/ONE, France Télécom, France
- 10h00 New developments for Aerospace – Hector Guerrero, Instituto Nacional de Tecnica Aeroespacial - INTA, Spain
- 10h30 BREAK
- 11h00 The start up model – Francisco Martin, MusicStrands Inc, USA
- 11h30 Discussion
- 12h30 LUNCH – At Restaurants around Institut Curie
- 14h30 Nanotechnologies in future electronic microsystems – Ubaldo Mastromatteo, STMicroelectronics, Cornaredo, Italy
- 15h00 Photonics – John Rarity, University of Bristol, UK
- 15h30 Users' demands and users' role in design – Leena Norros, VTT Industrial Systems, Finland
- 16h00 Social and Behavioral users styles in relation to new technologies – Phillipe Mallein, Maison des Sciences de l'Homme-Alpes / Université Pierre Mendès-France, Grenoble, France
And Theo Ohlmann, Laboratoire de Psychologie et Neuro-Cognition, Grenoble, France
- 16h30 BREAK
- 17h00 New Ethical issues – Sonia E. Miller, Converging Technologies Bar Association (CTBA), New York, US
- 17h30 New Ethical issues – Françoise Roure, Conseil Général des Technologies de l'Information, France
- 18h00 Discussion

Thursday 7 April

- 09h00 New developments: defence – Doug Imeson, Defence Science and Technology Laboratory, Salisbury, UK
- 09h30 US policy – Roland Hérimo, Consulat Général de Houston, USA
- 10h00 Japanese policy – Hideaki Takayanagi, NTT Basic Research Laboratories, Japan
- 10h30 BREAK
- 11h00 European policies – Afonso Ferreira (COST TC TIST), COST Office, Belgium
- 11h30 Discussion
- 12h30 LUNCH – At Restaurants around Institut Curie
- 14h30 European policy – Patrick Van Hove, DG Information Society, European Commission, Belgium
- 15h00 7th Framework Programme and the Action Plan on nanosciences and nanotechnologies – Heico Frima, DG Industrial Technologies, European Commission, Belgium
- 15h30 Benchmarking of national policies - Eranet on nanosciences – Izo Abram, CNRS, Paris, France
- 16h00 Benchmarking of national policies - Eranet on nanosciences – Panel with representatives of the main funding agencies in Europe.

Participants (on invitation only)

- Representatives of Funding Agencies
- European Commission
- European Science Foundation
- Scientific and Industrial Experts
- Scientific Press



ESF Forward Look NanoSciences and the long term evolution of Information Technologies (NSIT)

4-7 April 2005, Paris, France

The emergence of nanotechnologies together with the maturity of other technologies (silicon for instance) will make possible new and potentially disruptive functionalities in the domain of data handling, storage and communication. These will encourage the emergence of new products, which could have a major impact on our lives.

This Forward Look initiative will

- Review the state-of-art of current research
- Foresight emerging and future developments in the application of Nanosciences to Information Technologies
- Discuss the future impact of these developments in science and society
- Make recommendations regarding scientific priority areas, funding policies, etc.

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Venue

Institut Curie, 12 rue Lhomond, Paris 5
Tel.: 01 5624 0380 – Fax: 01 5624 0383
(during the conference)

The Institut Curie is located in central Paris and is easily accessible by public transport (metro, bus and RER).

Aim of the Nano Science and Information Technology Forward Look

The aims of this forward look are three fold:

1) Identify the possible impact of present-day research and forecast the important research topics of the next 10 years.

- What are the fundamental scientific barriers to be overcome in advancing information technology?
- Are there serious competitors to overcome the limitations of present technology?
- Which new systems of information handling could emerge? What are the expected challenges?
- What are the challenges for software developments?

2) Discuss the impact of these developments

- What is the role of the market and user behaviour in pulling these developments?
- What completely new uses can be produced by the increase in capacity of information systems?
- What new ethical issues are raised by these developments?

3) Discuss policy issues

- What is the current and future European research landscape and what are the possible gaps?
- How to organize the micro-nano transition in industry?
- Which recommendations for the future should be made concerning major topics such as funding, infrastructures, education, etc.

Structure of the NSIT Conference

Part one: Fundamental science

- Molecular electronics
- Quantum information
- Spintronics
- Photonics
- Bio neuro electronics
- MEMS/NEMS
- Fundamental issues and ultimate CMOS

Part two: Technical challenges

- Storage of information
- Information processing
- Information transfer
- Smart interfaces
- Software

Part three: IT for all

- Industrial and marketing aspects
- User aspects (what is a smart interface)
- IT everywhere (industry point of view)
- Ethics safety/risk

Part four: Policy issues

- Public funding (benchmarking of national policies, European policy)
- Industrial funding
- US and Japan

ESF Forward Look Report

The output of this exercise will be a set of recommendations to national and European research funding agencies, an ESF policy briefing, and an extensive report. The results of this foresight study should eventually exert long-lasting impact on European scientists and engineers working in the field.

Programme

Monday 4 April

- 09h30 Opening
Mr. Ariel Levenson, Director of C'nano
Dr. John Marks, Director of Science and Strategy, ESF, Strasbourg, France
- 10h00 CMOS meets NANO: A never ending story – *Heinrich Kurz, Institute of Semiconductor Electronics II, RWTH Aachen, Germany*
- 10h30 BREAK
- 11h00 Nanomanipulation – *Laszlo Forro, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland*
- 11h30 Discussion
- 12h30 LUNCH – At Restaurants around Institut Curie
- 14h30 Spintronics – *Albert Fert, Université Paris Sud, France*
- 15h00 Molecular electronics – *Jean-Philippe Bourgoin, Département de Recherche sur l'Etat Condensé, les Atomes et les Molécules (DRECAM), Commissariat à l'Energie Atomique (CEA-Saclay), France*
- 15h30 Data processing – *Göran Wendin, Chalmers University of Technology, Sweden*
- 16h00 Bio Neuro informatics – *Andreas Offenhäusser, Institute of Thin Films and Interfaces (ISG), Forschungszentrum Jülich, Germany*
- 16h30 BREAK
- 17h00 Context – *Alois Ferscha, Johannes Kepler Universität Linz, Austria*
- 17h30 Solid-state quantum bits – *Daniel Esteve, Quantronics, SPEC, CEA Saclay, Gif-sur-Yvette, France*
- 18h00 Discussion

Tuesday 5 April

- 09h00 Storage concepts – *Claude Chappert, Institut d'Electronique Fondamentale, Université de Paris-Sud, France*
- 09h30 Scanning Probe Techniques for ultra-dense Data Storage – *Peter Vettiger, IBM Zürich Research Laboratory, Switzerland*
- 10h00 Data processing – *Georges Bourianoff, Intel Corporation, USA*
- 10h30 BREAK
- 11h00 Market – *Andreas Wild, Freescale Semiconductor, France*
- 11h30 Discussion
- 12h30 LUNCH – At Restaurants around Institut Curie
- 14h30 Smart interfaces – *Thomas Kirste, University of Rostock, Germany*
- 15h00 Challenges for Software-Intensive Systems – *Martin Wirsing, Institut für Informatik, Universität München, Germany*
- 15h30 Quantum information – *Daniel Loss, University of Basel, Switzerland*
- 16h00 Cognition and IT – *Antonio Pedotti, Bioengineering Department, Politecnico di Milano, Italy*
- 16h30 BREAK
- 17h00 Information transfer – *Gerhard Fettweis, Technische Universität Dresden, Germany*
- 17h30 Global pervasive computing – *Robin Milner, University of Cambridge, UK*
- 18h00 - 19h00 Discussion
- 20h00 BANQUET