ObservatoryNANO Newsletter January 2010

ObservatoryNANO www.observatory-nano.eu

SEVENTH FRAMEWORK PROGRAMME

The mission of the ObservatoryNano is to create a European Observatory on Nanotechnologies to present reliable, complete and responsible science-based and economic expert analysis, across different technology sectors, establish dialogue with decision makers and others regarding the benefits and opportunities, balanced against barriers and risks, and allow them to take action to ensure that scientific and technological developments are realised as socio-economic benefits.

The ObservatoryNANO project is funded under FP7 for four years from 1st April 2008. It is collating and analysing data regarding scientific and technological (ST) trends (including peer-reviewed publications, patents, roadmaps, and published company data) and economic realities and expectations (including market analysis and economic performance, public and private funding strategies). The ST and economic analysis is further supported by assessment of ethical and societal aspects, impacts on environment, health and safety, as well as developments in regulation and standardisation. Although much of this work is performed within the consortium, the project is working cooperatively with other initiatives to ensure that effort is not duplicated and that resource sharing and output are maximised. To date liaisons have been established with international organisations including the EPO, OECD, and ISO, and are continuing to be established with other relevant organisations such as European Technology Platforms (ETPs), ERA NETs, and other EU-funded projects.

If you would like to find out more about the ObservatoryNANO project, participate in the engagement process or establish a liaison with the project, please contact the coordinator: Dr Mark Morrison (mark.morrison@nano.org.uk)

Newsletter contents

ObservatoryNANO Annual Symposium

Grenoble, 22nd & 23rd June 2010

The 2nd Annual Symposium of the ObservatoryNANO will take place on the 22nd and 23rd June 2010 as part of the MINATEC Crossroads '10 in Grenoble.

Invited speakers representing each of the ten technology sectors will present, in addition to presentations from the corresponding ObservatoryNANO consortium members. A consortium meeting, Governing Board meeting, and WP7 (Observing the Observers) workshop.

Further information on the MINATEC Crossroads '10 event can be found at www.minatec.com/crossroads

ObservatoryNANO Online Survey

An additional route for expert engagement for our 2nd Year 'Hot' Topic sector reports and 1st Year report updates, along with workshops and telephone interviews, will be an online survey open to all visitors of www.observatory-nano.eu

For each technology sector there will be 10 – 12 multi-choice or open questions to provide further overview information for inclusion in the reports that will be published in April 2010. Responses will also be used to help determine potential future focus topics for the 3rd and 4th year of the ObservatoryNANO.

NANOfutures

New collaboration

The ObservatoryNANO will be working closely with the recently launched NANOfutures European Initiative. This initiative will be liaising with industry, research, networks and NGO's at all levels for a joint movement towards a new industry to fully exploit the potential of nanotechnology, and to ensure that Europe remains globally competitive.

Further details of the NANOfutures initiative can be found at www.nanofutures.eu

Agrifood

Nanotechnologies for Agricultural Production and Management

Douglas Robinson (IoN) & Gabriela Salejova-Zadrazilova (TCASCR)

Two integrated events were held on 10th and 11th of November 2009 for a key area within the Agrifood sector, "Nanotechnologies for Agricultural Production and Management".

The first event was an interactive horizon scanning and state of the art workshop where researchers, industry and industry associations, market analysts, health and safety and risk experts were brought together to explore the key challenges and opportunities for nanotechnologies and their use in agricultural production and management. The discussions provided insights from across the board, and allowed a more fine grained assessment of the promising application areas and the factors that would shape their success or failure. The second event was a special session on Nanotechnologies for Agricultural Production and Management at the British Crop Production Council Congress 2009 (www.bcpc.org). After an introduction to the ObservatoryNANO agrifood research and resources, Gabriela Salejova-Zadrazilova introduced some key findings from the work on economic aspects in the ObservatoryNano. This was followed by two industry presentations from Dave Duncalf of IOTA Nanosolutions and Patrick Mulqueen of Syngenta

We would like to thank the following experts for their contributions in both events; Dave Duncalf (IOTA Nanosolutions); Kathy Groves (Leatherhead Food International); Steve Hankin (Institute of Occupational Medicine); Pat Mulqueen (Syngenta); Paul Leonard (BASF); Roy Pemberton (University of the West of England); Gabriela Salejova-Zadrazilova (Technology Centre AS CR); Brajesh Singh (Macaulay Land Use Research Institute); Alan Smith (AZ Technology); Peter Spencer-Phillips (University of the West of England); Sam Tothill (Cranfield University); Peter Whitehouse (IOTA Nanosolutions); and Wolfgang Wirth (Bayer Crop Science).

Security

Protective Materials for Emergency Responders

Eleanor O'Rourke (IoN) & Tom Crawley (Spinverse)

The expert engagement workshop on the focus topic of the Security sector, Protective Materials, took place on 27th November 2009 at the Royal College of Physicians in London. The workshop was attended by experts from academia, government agencies and industry. Technological developments were discussed and analysed together with an assessment of the economic drivers and barriers.

The session proved to be highly dynamic and insightful; the outcomes will be incorporated into the draft report, which was completed in November 2009. Further expert engagement through telephone interviews and the online survey will also be incorporate before final peer review and publication in April 2010.

We would like to thank the following experts for their enthusiastic contribution: John Almond (Alexium Group); Andy Blackburn (MAST Carbon International Ltd); Stephen Coulson (P2i); Daniel Longhurst (Home Office Scientific Development Branch); Cath Rogan (Smart Garment People); Steven Savage (Swedish Defence Research Agency); Olga Shenderova (International Technology Centre); Steve Tennison (MAST Carbon International Ltd); Ashok Vaseashta (Institute for Advanced Sciences Convergence); Nick Walker (iXscient); and Yanqiu Zhu (University of Nottingham).

Environment

Nano Zero Valent Iron

Nicole Müller (EMPA) & Tom Crawley (Spinverse)

The workshop on Nano Zero Valent Iron (nZVI) was held on the 24th of November 2009 in Zurich. It brought together different experts from research, government and commercial companies as well as project-internal representatives of three different work packages (WP2, 3 and 5) and a representative of the JRC Ispra. The workshop aim was to gather information on the current "state of the art" in the field of nZVI-applications in Europe as well as to identify future trends. In the morning, five experts presented their experience with nZVI-applications. In the afternoon, a discussion was held on 11 key issues in the field of technical and economical challenges.

The meeting was a great success. All participants were very involved and brought a lot of theoretical and practical knowledge into the discussion. The experts agreed to collaborate further and give input to the focus report (which will be available on the observatoryNano-Website). It is further planned to publish a paper on this topic in a peer-reviewed journal. Based on the results of the workshop, the draft report was amended and completed. The report is freely available on the ObservatoryNano Website: www.observatorynano.eu

We would like to thank the following experts for their valuable contribution: Dr Jürgen Braun (University of Stuttgart, Germany); Dr Johannes Bruns (Golder Associates, Germany); Dr Miroslav Černík (University of Liberec, Czech Republic); Dr Barbara Karn (U.S. EPA, USA); Dr Peter Rissing (Alenco, Germany); Dr David Rickerby (JRC Ispra, Italy)

Upcoming workshops

Electric vehicles

Session at Advanced Automotive Battery Conference

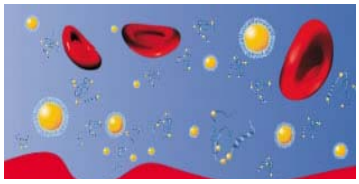
Mainz

2nd – 5th February 2010

For further details please contact

Laslo Bax (Bax & Willems)

l.bax@bwcv.es



Drug delivery & Regenerative Medicine

Session at Nanomedicine: Visions for the Future

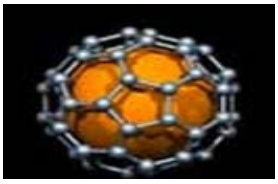
Amsterdam

25th February 2010

For further details please contact

Richard Moore (IoN)

richard.moore@ion.org.uk



Carbon based materials

Session at Nanofair 2010

Dresden

6th & 7th July 2010

For further details please contact

Dr Matthias Werner

werner@nmtc.de

If you are interested in participating in any of the upcoming workshops please contact the relevant consortium partner detailed.

February 2010

Albert Franks Memorial Lecture
11th February 2010, London

Pietro Perlo (FIAT) will present

Clean Mobility: Enabling Technologies

For further information see
www.nano.org.uk/events/ionevents.htm
or contact carrie.smith@nano.org.uk

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www.nano.org.uk/events/ionevents.htm
or contact carrie.smith@nano.org.uk

June 2010

Nanotoxicology 2010
EDINBURGH
June 2nd - 4th 2010

Early Bird Registration and Abstract Submissions open

The Organising Committee of Nanotoxicology 2010 are pleased to announce the opening of early bird registrations and abstract submissions.

www.nanotoxicology2010.org

The 3rd event of the *Nanotoxicology* conference series, Nanotoxicology 2010, is aimed at professionals and students in nanotechnology environment, health and safety (EHS) research. Taking place from June 2nd - 4th 2010 in Edinburgh, Scotland, Nanotoxicology 2010 promises to form a key date in the calendar for 2010. The conference is now open for abstract submissions (oral and poster presentations), and early bird registration, which will remain available until the 30th January 2010. The final deadline for registration is the 1st May 2010. The final deadline for Abstract Submissions is March 19th 2010. A limited number of Bursaries are available to student applicants to the conference from the Colt Foundation.

Program
The Scientific Programme for Nanotoxicology 2010 is divided into sections which allow focus on specific types of nanomaterials. The programme is available on the event website.

Speakers
Nanotoxicology 2010 will bring together multidisciplinary expertise from across the field, and has already confirmed keynote speakers from institutions working at the cutting-edge of the field, including: Günter Oberdörster (University of Rochester); Ken Donaldson (University of Edinburgh); Kevin Dreher (US EPA); Stig Irving Olsen (Technical University of Denmark); Martin Philbert (University of Michigan); and Andrew Maynard (Project on Emerging Nanotechnologies).
Additional keynote and invited speakers are being added as they are confirmed.

LATEST RIVM REPORT

Nanomaterials under REACH: Nanosilver as a case study

RIVM report 601780003/2009 Author: M.E.J. Pronk et al

Some adjustments are needed in the European chemicals legislation REACH to assess and control the risks of nanomaterials. The information on substances to be provided under REACH is not sufficient to determine the specific properties of nanomaterials, nor to assess how these properties affect their behaviour and effects in humans and the environment. This is the conclusion of RIVM following research into the suitability of REACH for nanomaterials described in their recent report *Nanomaterials under REACH-Nanosilver as a case study* of M.E.J. Pronk et al. RIVM therefore proposes an adapted set of minimum information requirements, to be applied to all nanomaterials to be registered under REACH, independent of their volume of production and import. These requirements allow a risk assessment of nanomaterials.

In the report a hypothetical registration of nanosilver was conducted and by this, it was investigated whether REACH is suitable for assessing the safe use of nanomaterials. Further conclusions of the report are that no definition of a nanomaterial is present, and that a relevant measure for expressing harmfulness and exposure is as yet not known. In addition, the standard information requirements are insufficient to assess hazard and exposure. They are also insufficient for a proper characterisation of the nanomaterial. Consequently, it cannot be determined to what extent the nanoform of a substance corresponds to the non-nanoform of the same substance. Furthermore, it is unclear whether current risk reduction measures and extrapolation methods in risk assessment, as established for non-nanomaterials, are applicable to nanomaterials.

For more information see: http://www.rivm.nl/bibliotheek/rapporten/601780003.pdf

NANOTECHNOLOGIES AND FOOD

UK House of Lords Science & Technology Committee Report 8th January 2010

Based on written and oral evidence collected from a number of stakeholders within the UK and other countries (including from the Institute of Nanotechnology), the report 'Nanotechnologies and Food' recognises some of the potential benefits that nanotechnologies could bring to food production, processing and packaging. While it finds no evidence of nanomaterials in foodstuffs presenting a risk to consumer safety and no known foodstuffs available on the UK market containing nanomaterials, it is critical of the food industry for not publicising its R&D programmes, and the UK Government for failing to adequately fund research in health and safety issues.
Commenting on the report, the Institute's CEO, Dr Mark Morrison, said: 'Access to information and transparency regarding product development is a must for the future success of any technology, to ensure that developments meet consumer needs and assuage any consumer concerns. The Institute of Nanotechnology has worked closely with industry, academia and government for the responsible development of nanotechnology in all industrial sectors, including hosting and participating in public debates on the potential benefits and risks on nanotechnology-enabled applications. With respect to the food sector, it is important to remember that processed food makes up a substantial portion of the daily diet in developed countries. New technology developments that improve the quality, safety and nutritional value of such foodstuffs should be welcomed, with the caveat that these must be safe for the consumer and the environment.'

The report can be downloaded from
www.parliament.uk/parliamentary_committees/lords_s_t_select/nanotechfood.cfm

Italian nanobioethics debate drowned by confrontation between Secularists and Catholics

Even though there has been a public and stakeholder debate on nanobioethics in Italy for several years, this discussion is not very visible on an international level. In this interview, Professor Luca Marini gives some insight in the characteristics of the Italian nanobioethics-scene, and in the key issues to resolve. He is a key organiser of this debate. In 2002, Professor Marini took the initiative for a working group of the Italian National Bioethics Committee on nanosciences and nanotechnology. This group produced an opinion on ethical aspects of nanotechnology in 2006. As president of Center for Biojuridical Studies "ECSEL", Professor Marini has promoted, organised and realized several events discussing ethics of nanotechnology, converging technologies and other new technologies.

Under the header of Nanobioethics, ObservatoryNano aims to highlight technological and economic trends in nanotechnology for health, medical, biotechnological and agrifood applications with potential ethical and social implications. Simultaneously, current debates on relevant issues in nanobioethics among ethicists and social scientists, policy making circles and stakeholders are analysed and confronted with the issues emerging from the technical and economic trends. This way, emerging issues not discussed sufficiently can be identified and brought to the attention of policy makers in the second annual report on nanobio ethics to be published online in the spring of 2010. The series of interviews with opinion leaders is intended to be a compilation of different views on the relevant issues currently in debate from different perspectives of social scientists, ethicists, natural scientists, and stakeholders from industry and civil society.

Ineke Malsch: What are the main issues in nanobioethics currently in debate in Italy in your view? Why are these issues the main issues?

Luca Marini: The debate on nanobioethics in Italy has been supported almost exclusively by ECSEL and a few other bodies. As a matter of fact, the Italian bioethical debate is mostly reduced to the opposition between Secularists and Catholics on issues of early-life (cloning, stem cells, and embryo) and late-life (euthanasia, living will). In this situation the public is unable to perceive and understand the issues related to the spread of nanotechnology or to assess the bioethical implications.

Ineke Malsch: Which issues are caused by a lack of scientific insight into ethical, legal or social aspects? What can ethicists, philosophers and social scientists contribute to the discussion on these issues?

Luca Marini: The lack of scientific approach in the ethical, legal and social facets promotes a stereotyped debate. This debate is more concerned with the defence of political and dogmatic positions than with the solution of problems. Ethicists, philosophers and social scientists can contribute to the solution of problems only by working in an interdisciplinary manner making use of other skills.

Ineke Malsch: Which issues are caused by conflicts of interests between groups in society? What is the role of politicians and civil society in addressing these issues?

Luca Marini: At the moment, there is no conflict between society and techno-industrial stakeholders in nanotechnology. This is because the problem has not yet matured in the social consciousness. The role of politicians and civil society should be to help this development in a transparent and shared manner. In this context, the redefinition of

science-society relationships and the promotion of a pluralistic and objective culture of science communication are fundamental.

Ineke Malsch: What role (if any) can the European Commission code of conduct for responsible nanotechnology research play in governing nanobiotechnology?

Luca Marini: The European Commission should undertake to conduct a science-based debate trying to balance the technological, industrial and market interests with concerns of a general interest such as environmental protection, health and consumer protection. This is a very difficult goal, considering the interests at stake and the pressure from the industrial world that the Commission is confronted with.

Ineke Malsch: Are there applications of nanobiotechnologies which should not be allowed or subject to new regulations according to you? At which level should such measures be taken (national, EU, global)?

Luca Marini: We must distinguish between scientific progress and its applications. While scientific progress must remain free, technological applications must be regulated at the highest possible level. This is particularly true for those applications that have an impact on the environment and on human health.

Ineke Malsch: Do you think there are applications of nanobiotechnologies which should be stimulated more than they are now for ethical reasons?

Luca Marini: I believe that applications of nanomedicine must be particularly encouraged.

Ineke Malsch: How do you see your own role in the developments and discussions?

Luca Marini: The participation in the Italian National Bioethics Committee (CNB) gives me the opportunity to stimulate the debate on nanobioethics within the maximum advisory institution on bioethics of the Italian government. In addition, I am heavily involved in the organization of public events to draw the attention of the experts and of the public to nanotechnology.

Prof. Dr. Luca Marini

Vice President of Italian National Bioethics Committee; Professor of International Law at "La Sapienza" University of Rome; European Commission "Jean Monnet Chair Ad Personam" of Biolaw; President of Centre for Biojuridical Studies "ECSEL" (European Centre for Science, Ethics and Law); Member of Task Force on Nanotechnologies of FEDERCHIMICA

"La Sapienza" University, Faculty of Economics, Rome, Italy

http://www.ecsel.org/ ; http://www.governo.it/bioetica/index.html

Role in debate on nanotechnology, ethics & society

In 2002, Professor Marini took the initiative for a working group of the Italian National Bioethics Committee on nanosciences and nanotechnology. This group produced an opinion on ethical aspects of nanotechnology in 2006. As president of Centre for Biojuridical Studies "ECSEL", Prof. Marini has promoted, organised and realized several events discussing ethics of nanotechnology, converging technologies and other new technologies.

Relevant recent publications

L. Marini, "Codice del diritto internazionale e comunitario della bioetica", Torino, Giappichelli, 2009 ("Code of international and community law of bioethics", Turin, Giappichelli, 2009);

L. Marini, "Diritto internazionale e comunitario della bioetica, Torino, Giappichelli, 2006 ("International and community law of bioethics", Turin, Giappichelli, 2006);
Italian National Bioethics Committee, "Opinion on Nanosciences and Nanotechnologies", Rome, 9 June 2006, http://www.governo.it/bioetica/eng/opinions/Nanosciences_9_06_206.pdf

L. Marini, "Il principio di precauzione nel diritto internazionale e comunitario", Padova, Cedam, 2004 ("Precautionary principle in international and community law", Padua, Cedam, 2004).

Recent events

1 December 2009, "Dottore, vorrei un corpo bionico! Cibernetica e biorobotica per il potenziamento umano" ("Doctor, I want a bionic body! Cybernetic and Biorobotics for Human Enhancement"), ECSEL, Rome, http://www.ecsel.org/conferences.htm;

26 November 2009, "Nuove tecnologie e riabilitazione di alta specializzazione" IV Convegno Nazionale della Società Italiana di Riabilitazione di Alta Specializzazione ("New Technologies and Riabilitation of High Specialisation", IV National Conference of Italian Society of Riabilitation of High Specialisation), Pavia, http://www.sirasonline.it;

15 July 2009, "L'Etica del Nuovo: Nanotecnologie, Neuroscienze, RoboEtica" ("Ethics of the New: Nanotechnology, Neuroscience and RoboEthics"), ECSEL, Rome, http://www.ecsel.org/conferences.htm;

19 February 2009, "Le Converging Technologies: Nanotecnologie, neuroscienze, robotica" ("Converging Technologies: Nanotechnologies, Neurosciences, Robotics"), ECSEL, Rome, http://www.ecsel.org/conferences.htm;

20 November 2008, "Convegno Nazionale Nanotecnologie, Ambiente e Sicurezza", ("National Conference on Nanotechnologies, Environment and Security"), Veneto Nanotech, Milano, htpp://www.venetonanotech.it;

2 December 2007, "Conferenza sulle nanotecnologie" ("Conference on Nanotechnologies"), FEDERCHIMICA, Milano, htpp://www.federchimica.it;

27 June 2006 "Convegno internazionale di studio sulle nanoscienze e le nanotecnologie ("International Conference on Nanosciences and Nanotechnologies"), ECSEL, Rome, http://www.ecsel.org/conferences.htm

The ObservatoryNANO project is coordinated by the Institute of Nanotechnology (IoN) (UK), and includes:

- VDI Technologiezentrum (DE) www.vditz.de/
- Commissariat à l'énergie atomique (CEA) (FR)
- Institute of Occupational Medicine (IOM) (UK)
- Malsch TechnoValuation (MTV) (NL)
- triple innova (DE)
- Spinverse (FI)
- Bax and Willems Consulting Venturing (B&W) (ES)
- Dutch National Institute for Public Health and the Environment (RIVM) (NL)
- Technical University of Darmstadt (TUD) (DE)
- Associazione Italiana per la Ricerca Industriale (AIRI) (IT)
- Nano and Micro Technology Consulting (NMTC) (DE)
- Swiss Federal Laboratories for Materials Testing and Research (EMPA) (CH)
- University of Aarhus (DK)
- MERIT - Universiteit Maastricht (NL)
- Technology Centre AS CR (CR).