



Deliverable report for

**SUN**

Sustainable Nanotechnologies

Grant Agreement Number 604305

## **Deliverable D 10.4 2nd Dissemination progress report**

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<b>Dissemination Level:</b>		
PU	Public	X
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

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## Description of task

The 2nd Dissemination progress report provides annual progress reporting for the dissemination and training activities undertaken within the project.

## Description of work & main achievements

The overall goals of WP 10 of the SUN project (i.e. to provide knowledge transfer and to disseminate the outputs of the project to relevant audiences) have been accomplished by organizing training courses, conferences, workshops and other dissemination events and well as targeted outreach to industry, national and international regulatory bodies, scientific community and general public. The dissemination of the SUN project has benefited from the synergistic efforts of a large number of partners to reach relevant audiences.

Within the second reporting period, several important results for WP10 have been achieved.

In Task 10.1 training sessions targeted to the next generation of scientists such as PhD students and Post-Doc researchers from within the SUN consortium and outside have taken place, mainly in the form of schools and workshops. TRC has led the coordination and promotion of training and dissemination events (detailed information is provided below). UNIVE has supported the coordination with all other Consortium partners actively contributing to the events.

In Task 10.2 specific workshops aimed at discussing and presenting the progress of the SUN user-friendly, software-based Decision Support System (SUNDS) targeted to its intended end users (i.e. representatives of industry, regulatory and insurance sectors) and consortium partners have taken place. TRC has taken the active lead to project manage and to promote several events, with UNIVE developing and contributing to the scientific agenda as well as supporting the logistical organization and on-site hosting.

In Task 10.3 TRC, along with other consortium members have successfully implemented the developed in the first reporting period dissemination plan (D10.2). The project's identity has been continuously enhanced through the means of consistent branding (e.g. the SUN logo, newsletters, promotional materials) used for international and external communication.

In Task 10.4 the project website ([www.sun-fp7.com](http://www.sun-fp7.com)), designed to provide one-stop access to information and guarantee a wide visibility of the project, has been the main means to provide constant updates about the latest news, upcoming events, and disseminate significant technical results achieved within the project.

In Task 10.5 dissemination to international bodies such as OECD, ISO, EU Commission, Scientific committees, ECHA, EFSA, US EPA, US NSF etc. has been performed. TRC and UNIVE have constantly updated representatives of these organizations on the project outcomes through the means of online communication (i.e. newsletters, press releases) and by inviting them to organized dissemination events.

In Task 10.6 UNIVE and TRC have played an active role to ensure the dissemination of all SUN activities within the NSC and through the joint organization of the workshops mentioned below.

In Task 10.7 TRC have kept track of all the scientific publications generated within the project and has made this list available on the website, together with hyperlinks to the journals where the work is published.

In Task 10.8 UNIVE included Intellectual Properties Rights (IPR) provisions in the SUN Consortium Agreement (CA), detailing the exchange of pre-existing, as well as foreground knowledge among partners for the execution of their common tasks in the project. IPR ownership and exploitation agreements within the partnership and outside the partnership have been created in the form of agreements.

In Task 10.9 the SUN Exploitation and IPR Protection Plan (EIPP) was implemented by UNIVE. It summarizes the strategy and the concrete actions for the protection and exploitation of the results generated by the project (D10.6). This has led to tangible results.

In Task 10.10 the University of Limerick team has maintained close contacts with the insurance sector on the progress been made by the SUN consortium in terms of both toxicology and exposure risk. They substantially contributed to the organization of the stakeholder workshops described below.

In Task 10.11 key representatives from the SUN project have attended the regular meetings of the NSC where the progress of the project has been presented. A significant effort in developing synergies and strengthening the collaboration among the NSC projects has been led by TRC and UNIVE through the creation and coordination of the NSC Dissemination WG on Training (<http://www.nanosafetycluster.eu/working-groups/7-dissemination-wg/training.html>).

The above mentioned results represent the continuous efforts to achieve the WP Objectives throughout the project duration. Progress in the achievement of specific tasks is outlined in more details in the sections below.

### **Task 10.1 Organisation of training schools for researchers and SUNDS training for stakeholders**

In the course of the second reporting period (April 2015- September 2016) several trainings have been delivered in order to ensure the knowledge transfer of high level of

skills among the consortium members and other relevant audience and to provide basic knowledge of the SUNDS among its main intended end-users from industry, regulatory and insurance sectors. Along the organization of the events UNIVE has provided the scientific coordination, supported the logistical and on-site organization for the events held in Venice, Italy, while all other consortium members have been actively engaged in the trainings through delivering key note presentations, seminars and practical exercises and/or contributing as participants.

TRC has had the active role in the project management, budgeting, promotion and on-site coordination (for the events held in Venice) of the following events as well as their before- and post-event publicity:

- 2<sup>nd</sup> SUN Stakeholders' Workshop: Seeking User Feedback on SUN Decision Support System, held on 7 October 2015 in Venice, Italy. The main objective of the workshop was to present the beta prototype of SUNDS to the intended end users: representatives of industry, regulatory and insurance sectors, in order to collect their feedbacks for further improvements towards the implementation of the final version of the software by March 2017. Information about the workshop has been disseminated through the following means: 1) website (<http://www.sun-fp7.eu/events/previous-events/2nd-sun-stakeholders-workshop>), 2) publication and dissemination of the workshop report through the SUN website (<http://www.sun-fp7.eu/summary-report-on-2nd-sun-stakeholder-workshop>), 3) e-mailings and 4) post-event press release (<http://www.sun-fp7.eu/sun-2nd-annual-meeting-show-great-advancement-of-the-project>).
- 2<sup>nd</sup> Sustainable Nanotechnology School: A practical approach for understanding the environmental, health and safety implications of manufactured nanomaterials to foster their sustainable applications, held on 24 – 29 January 2016 in Venice, Italy. The school was jointly organized by the SUN, MODENA COST and ECONANOSORB projects with the main aim to provide practical training of young researchers from within and outside the projects on experimental and modeling approaches and best practices for physicochemical characterization, (eco)toxicity testing, exposure, risk, life-cycle impact assessment and decision support for sustainability of nanotechnologies and risk governance. This school served also as an effective platform for dissemination within the scientific community and reaching an as wide audience as possible. The event was disseminated through the following means: 1) website (<http://www.sun-fp7.eu/events/previous-events/2nd-sustainable-nanotechnology-school-1>), 2) flyer (provided in the Appendix), 3) advertisement in the NSC Forum; 3) e-mailings, 4) promotion through social media channels such as LinkedIn, Twitter, Facebook and 5) post-event press release (<http://www.sun-fp7.eu/for-the-second-year-in-a-row-sun-hosts-a-succesfull-week-of-international-nanotechnology-events-in-venice>).

- Workshop “Integrating Exposure and Hazard Assessment in the SUN Decision Support System (DSS)”, held on 4 – 5 February 2016 in Bilthoven, the Netherlands. The workshop was aimed to present the current status of development of the SUN DSS and foster a discussion among the consortium members on a strategy for developing a PROAST web service. As the workshop was targeted to a limited internal audience the information about the event was disseminated only through the project website (<http://www.sun-fp7.eu/events/previous-events/integrating-exposure-and-hazard-assessment-in-the-sun-decision-support-system-dss>).

### **Task 10.2 Organisation of workshops for regulators and industry managers**

Workshops targeted to external audience represent a very effective form of dissemination as their aim is not only to transfer the knowledge created within the project to its stakeholders, but also to enhance the project identity within the wider scientific community as well as with “end-users” in industry and national and international regulatory bodies. TRC has taken the active lead within Task 10.2 to project manage, promote and ensure the post-event publicity of the organized workshops which served the above stated purposes. Consortium members have actively contributed to the organized events by delivering presentations and liaising with relevant stakeholders. UNIVE has been responsible for developing and contributing to the scientific agenda as well as supporting the logistical organization and on-site hosting of the events held in Venice, Italy. The following workshops aimed at internal and targeted external audience have been organized:

- 2<sup>nd</sup> SUN Stakeholders’ Workshop: Seeking User Feedback on SUN Decision Support System, held on 7 October 2015 in Venice, Italy (detailed description can be found in Task 10.1).
- International workshop “Lifecycle impacts of Copper nanomaterials released from timber preserving impregnations”, held on 22 January 2016 in Venice, Italy. Jointly organized by the SUN and ECONANOSORB projects, the workshop was designed to meet experts from Europe, Russia and USA and discuss the main results achieved among the organizing projects as well as the U.S. Environmental Protection Agency on the topics of release, fate, exposure, effects, lifecycle impacts and health risks of the Cu nanomaterials, covering both experimental and modeling approaches. The information about the event has been disseminated through the following means: 1) website (<http://www.sun-fp7.eu/events/previous-events/workshop-lifecycle-impacts-of-copper-nanomaterials-released-from-timber-preserving-impregnations>), 2) e-mailings, 3) post-event press release (<http://www.sun-fp7.eu/for-the-second-year-in-a-row-sun-hosts-a-successful-week-of-international-nanotechnology-events-in-venice>), 4) Workshop Proceedings (<http://www.sun-fp7.eu/wp-content/uploads/2015/11/Workshop-Proceedings.pdf>).

- Society for Risk Analysis (SRA) –NSC Roundtable “From Nano Risk Management to Risk Governance: Methods and Tools”, held on 28 January 2016 in Venice, Italy. The round table discussion, co-organized and supported by the SUN project, Society for Risk Analysis and EU NSC, provided a forum for cross-fertilization of current initiatives designed to foster progression of risk assessment and management towards risk governance through integration of traditional risk management tools with risk governance approaches. The event was disseminated through: 1) SUN project website (<http://www.sun-fp7.eu/events/previous-events/round-table-from-nano-risk-management-to-risk-governance-methods-and-tools>), 2) Society for Risk Analysis inner communication channels, 3) flyer (provided in the Appendix), 4) e-mailings and 5) post-event press release (<http://www.sun-fp7.eu/for-the-second-year-in-a-row-sun-hosts-a-successful-week-of-international-nanotechnology-events-in-venice>).

### Task 10.3 Dissemination framework

Within the reporting period all consortium members have implemented the dissemination plan as well as the promotional plan, highlighting operational tasks to realize the objectives developed by TRC with the support of the Coordinator and the WP Leaders in the initial phase of the project (months 1-6, D10.2). In line with the developed dissemination and promotion plans, the efforts of all consortium members have been directed towards enhancing the project’s identity and raising high awareness of the project within the Nanotechnology community as well as providing knowledge transfer to relevant stakeholders.

Specifically, the following activities have contributed to the implementation of the developed dissemination and promotional plan:

- General dissemination activities:
  - TRC along with all consortium members have used the established templates for preparing reports, presentations, posters, press releases, event programs, signature’s lists and other form of internal and external communication.
  - TRC along with all consortium members have distributed the developed synthetic project flyer during the meetings, workshops and conference they have attended.
  - TRC has developed and printed a banner for SUN, available for all partners also in electronic format. TRC and UNIVE have made use of the printed banner during the SUN organized events as well as whilst attending other events.
  - TRC with the contribution of UNIVE have developed a promotional banner for SUNDS and made it available for all partners also in electronic format.
  - Continuous development of the SUN mailing list: through various sources, TRC has built up and maintained a mailing list of over 2500 contacts (an increase of 1500 contacts realized within the second reporting period). This list includes

international academic, research, regulatory and industry contact, interested in nanotechnology.

- TRC has established solid relationships with press and media partners and is putting continuous efforts to expand its media coverage in order to reach as wide audience as possible in order to ensure the effective dissemination of the project.
- Event-related promotional activities:

TRC uses an established promotional strategy for advertising SUN events in order to ensure high awareness and attendance as well as post-event publicity. Specifically, the event-related promotion activities performed by TRC include:

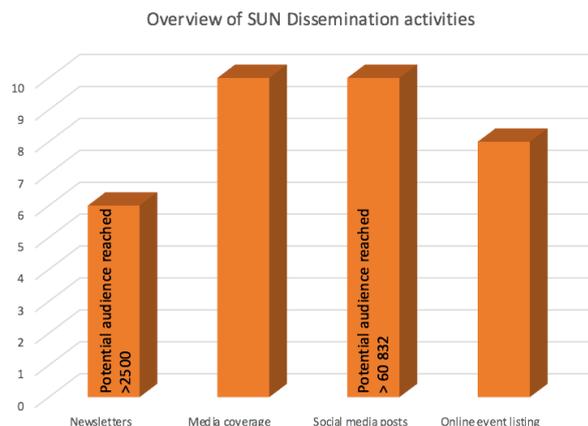
- Email marketing: 1) building of a detailed mailing schedule for each event while ensuring the harmonization of the promotional and other communication activities, 2) in-time execution of the email marketing schedule.
- Online marketing: dissemination of the events is achieved through 1) the SUN website (more detailed description is provided in Task 10.4), 2) the media channels of co-organizing partners, 3) publication of the events in the NSC Forum, 4) publication of the upcoming events in global scientific events directories and 5) social media channels.
- Public relations: TRC has written and distributed several press releases about the organized events, namely “Results from SUN 2nd annual meeting show great advancement of the project” and “SUN fosters international dialogue among top researchers, professionals and young scientists in the field of Nanotechnologies”. These have been very well received by the industry and thus have supported the general awareness of the SUN project.
- Dissemination of scientific results:

TRC have developed and implemented a strategy for effective dissemination of the scientific results achieved within SUN targeted to various stakeholders in order to ensure the high visibility of project not only to the scientific community but also to a more general public. This has been achieved through the following activities:

- Publication of news about SUN’s significant scientific publications in the SUN website (<http://www.sun-fp7.eu/a-publication-representing-the-first-tier-of-the-sun-decision-support-system-is-now-available-on-environment-international>, <http://www.sun-fp7.eu/the-sun-approach-has-been-accepted-for-publication-in-environmental-science-technology>).
- Development and distribution a Special newsletter issue emphasizing on the prominent scientific publications delivered within SUN (provided in the Appendix).

In summary Figure 1 represents the overview of the joint dissemination efforts realized

within the second reporting period which ensured the high awareness about the project and its results within the scientific community as well as the general public.



**Figure 10.1** - Overview of the SUN Dissemination activities for the second reporting period.

#### Task 10.4 Dissemination via the SUN webpage

TRC has successfully set up the project website ([www.sun-fp7.com](http://www.sun-fp7.com)) in the first reporting period (Deliverable D10.1) and during the second year has continuously expanded its content in order to be able to provide interim information about the project's latest news and events and achieved technical results to the interested audience.

The content of the following sections has been updated:

- Publications: constant updates on the list of scientific publications (in the form of peer-reviewed journal publications, conference and workshop proceedings) have been made through this section.
- Events: the content of the section has been constantly fed to include information about all previous and upcoming SUN organized events (with related detailed information in the form of a subpage), events calendar showing previous and upcoming events which SUN partners are attending to disseminate the SUN project as well as textual description of those.
- Promotional materials: the download area including promotional items about the SUN project and SUN events has been updated including prepared promotional materials for all past and upcoming events.
- News: The news section has been restructured into three sub-categories (general news, events news and NSC working group news) in order to give quick access to the searched information. The news section is actively used to display announcement about upcoming events and latest news about the project in the form of short news articles and press releases.

The following new sections have been created:

- NSC cluster working groups: a short description of the NSC Working groups (WGs) with which SUN is actively engaged has been provided along with links to the related NSC WGs webpages.
- Partner Journals: used to publish information about SUN's Partner Journals.
- Careers: used to publish call for applications for research fellowships related to SUN activities.

### **Task 10.5 Dissemination to OECD, ISO, EU Commission, Scientific committees, ECHA and EFSA**

Targeted dissemination to national and international regulatory bodies intended to keep such stakeholders updated on the project outcomes supporting their regulatory activity is taking place through ongoing activities such as the organization and participation of the Consortium to events, via on-line communication (through newsletters and press releases) and through the SUN project website.

Specifically, the events' organizers from the consortium have invited representatives of those bodies to the organized workshops, notably the 2<sup>nd</sup> SUN Stakeholders' Workshop: Seeking User Feedback on SUN Decision Support System, International workshop "Lifecycle impacts of Copper nanomaterials released from timber preserving impregnations", and the Society for Risk Analysis (SRA) – NSC Roundtable "From Nano Risk Management to Risk Governance: Methods and Tools". Such direct communication with representatives from those institutions has been the main means not only for raising awareness about the project but also to set a dialogue about the use of the achieved SUN results in supporting their regulatory activity. Additionally, through the participation of the Consortium partners at workshops/events of those organizations, such as OECD we have ensured high visibility of the SUN project among these stakeholders. The targeted dissemination of SUN published results has also reached this audience through the direct e-mailing and online distribution of related newsletters, press releases the SUN website and other relevant channels.

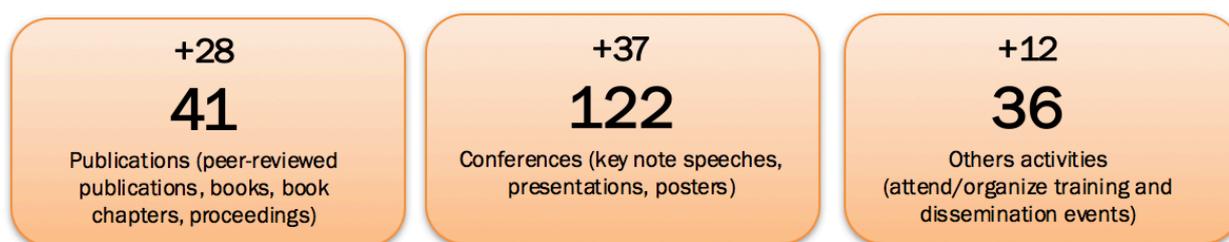
### **Task 10.6 Dissemination in existing EC funded activities**

UNIVE and TRC have played an active role in disseminating the SUN project results in existing EC funded activities. We have built a close relationship with the NSC, ensuring the dissemination of all SUN activities to the Nanosafety Community. Additionally, through the joint organization of the workshops mentioned above as well as attending events organized by other NSC projects we have ensured the awareness of SUN to other EC funded activities, notably Cost Modena, ECONANOSORB eNanoMapper, NanoFASE, GUIDEnano, NANoREG, NANoREG II, NanoSolutions, NanoMile, etc.

### **Task 10.7 Scientific publications**

TRC is keeping track of all scientific publications generated within the project and has made the list available on the project website, together with hyperlinks to the journals where the work is published (<http://www.sun-fp7.eu/publications/>). Further contributions, such as conference abstracts and posters have been collected as well and can be provided upon request. The full list of generated publications within the second reporting period is provided in the Appendix. TRC also keeps track of submitted but not yet published contributions which will not be reported in this period however can be provided upon request.

In summary Figure 2 represents an overview of the progress of the dissemination activities within the scientific community realized in the second reporting period:



**Figure 10.2** - Overview of SUN publications and other dissemination activities within the scientific community for the second reporting period providing number of contributions achieved within the period (+28, etc.) and the total number of contributions from the beginning of the project (41, etc.).

### Task 10.8 IPR management and protection

UNIVE supported the development and signature of IPR ownership and exploitation agreements within the partnership and outside the project. The SUN IPR Manager UNIVE systematically scanned the technical results of the project for identifying the possibility to patent some of them, in cooperation with the other technical developers of the project and under the control of the industrial partners, who will have key decision making power in these matters.

### Task 10.9 Exploitation plan

UNIVE implemented the “Exploitation and IPR protection plan” that was established in the first reporting period. This has already led to the exploitation of key results. For example, the prototype of the TiO<sub>2</sub> activated filter system “Proebe” (case study 5 by COLOROBBIA) has recently succeeded on the market and was demanded by many customers. Moreover, all LCA, health and safety data on this product generated in SUN was exploited by COLOROBBIA for certification purposes and to communicate the environmental footprint and the risks from Proebe to its users. The rest of the SUN industrial partners are currently exploring potential areas of exploitation of the SUN results.

### Task 10.10 Exploitation in financial risk sector

The University of Limerick team has maintained close contacts with the insurance sector

on the progress been made by the SUN consortium in terms of both toxicology and exposure risk. Given the absence of a major nano-material *adverse event*, the insurance sector is still adopting a “wait and see” approach and nanotechnology related risk is still present (though not necessarily covered) in general liability policies. That said, the industry remains concerned over potential long tail exposure. We are developing two approaches in parallel in the SUNDs decision support system. These are discreet insurance focused schema based on a control banding approach (cf. Mullins et al 2013) and the use of Bayesian statistics (forthcoming in Nanoscale Research Letters) to capture the uncertainty inherent in the data and occasional lacuna in that data. As the SUN project generates more risk related findings our underwriting tool will become more nuanced although the absence of *baselines* for both the toxicology and exposure axes remains a challenge. As the tool becomes more scalable we expect interest from primary insurers and reinsurers alike in order to improve underwriting protocol around nanotechnology related activities.

### **Task 10.11 Communications within the NanoSafety Cluster**

We have built a close relationship with the NSC, ensuring the dissemination of all SUN activities, such as events and news to the Nanosafety Community whilst fostering synergies among research groups. Specifically:

- TRC has actively contributed the NSC newsletter, by providing updates on the project and on the events.
- Key representatives from the SUN project have attended the regular meetings of the NSC where the progress of the project has been presented with the aim to:
  - To share the progress achieved by the project to the NanoSafety community and the stakeholders involved
  - To share ideas and harmonize approaches and methodologies
  - To avoid duplication of work and achieve synergies
  - To strengthen collaborations among the research groups involved
  - To promote the collaboration and joint publication of cross-project activities
- Consortium partners are leading and/or are actively engaged within the different NSC working groups (such as RIVM in WG2, UniHB in WG3 & WG5, AU and UNIVE in WG6 and TRC and UNIVE in WG7).
- TRC with the support of UNIVE have successfully established and lead the new sub-group on “Training” within the working group on “Dissemination” of the NSC. TRC has 1) lead the group formalization (through creating and maintaining the group’s membership database), 2) set up and constantly updated the new purpose-built NSC webpage (<http://www.nanosafetycluster.eu/working-groups/7-dissemination->

[wg/training.html](#)), 3) organized the setup of an intra-subgroup communications supported by the Cluster moderated mailer facility, 4) organized, hosted and prepared the summary reports of 5 group meetings, 6) created and is maintaining an active database for documentation of projects' past and upcoming training activities (courses, schools, PhD theses, etc.) which serves as an effective form of coordination of the training agendas of the NSC projects whilst fostering collaboration, ensuring consistently high level of skill across the projects and avoiding duplications in training offerings. The visibility of the group has been ensured through regular updates of the group's webpage within the NSC webpage, a dedicated news channel published in the SUN project website and newsletters distributed among its network.

## Deviations from the Workplan

No deviations

## Performance of the partners

Partners have contributed well to the dissemination of the project.

## Conclusions

The project is well on track with its dissemination and training activities. The reported results show the successful implementation of developed dissemination strategy by all consortium members. The described dissemination and promotional strategy which deploys a mix of online and offline channels has proven to be effective in achieving the set objectives (i.e. to disseminate the project outputs to relevant stakeholders). We have used the achievements towards raising general awareness for the project from the first reporting period (D10.3) as the foundation for the performed activities in the second year where we have focused on the dissemination of specific results from the other work packages, both to the scientific community and to other relevant stakeholders. A significant effort has been put in contribution to the NSC by the coordination of the NSC Work Group on Training through strengthening the within project's collaboration and achieving synergies.

In the next period the work of WP10 will continue to focus on the active dissemination of the scientific results achieved within SUN through the established channels: participation to international conferences, workshops and training events, active e-mail and online communication through the SUN contact network, the NSC, the SUN website and other press and media partners. A significant effort will be put in the organization of the SUN final dissemination events, notably the "New Tools and Approaches for Nanomaterial Safety Assessment: A joint conference organized by NANOSOLUTIONS, SUN, NanoMILE, GUIDEnano and eNanoMapper to be held on 7 - 9 February 2017 in Malaga, Spain, "SUN-CaLIBRAte Stakeholders workshop to be held on 28 February - 1 March 2017 in

Venice, Italy and “SRA Policy Forum: Risk Governance for Key Enabling Technologies to be held on 1- 3 March in Venice, Italy. These events have been designed to serve as an effective platform for sharing the main results achieved in the course of the project within the Nanosafety community but also to bring them to the wider discussion on risk governance of Key Enabling Technologies. Some of the project results were already exploited by industry (i.e. Colorobbia) and more are being considered (by e.g. BASF).

**References:**

Mullins M., Murphy F., Baublyte L., McAlea E.M.& Tofail S.A.M. (2013). The insurability of nanomaterial production risk. *Nature Nanotechnology*, 8, 222–224.

## Appendix

- Scientific Publications

Type	Title	Author(s)	Journal
Publication	Flows of engineered nanomaterials through the recycling process in Switzerland	Alejandro Caballero, Tianyin Sun, Bernd Nowack	Waste Management
Publication	Release of Nanomaterials from Solid Nanocomposites and Consumer Exposure Assessment - A Forward-looking Review	Aiga Mackevica, Seffen Foss Hansen	Nanotoxicology
Publication	Demonstrating approaches to chemically modify the surface of Ag nanoparticles in order to influence their cytotoxicity and biodistribution after single dose acute intravenous administration	Chengfang Pang, Andrea Brunelli, Conghui Zhu, Danail Hristozov, Ying Liu, Elena Semenzin, Wenwen Wang, Wuqun Tao, Jingnan Liang, Antonio Marcomini, Chunying Chen, Bin Zhao	Nanotoxicology
Publication	Review of decision analytic tools for sustainable nanotechnology	Vrshali Subramanian, Elena Semenzin, Danail Hristozov, Eshter Zondervan-van den Beuken, Igor Linkov, Antonio Marcomini	Environment Systems and Decisions
Publication	Collembolan Transcriptomes Highlight Molecular Evolution of Hexapods and Provide Clues on the Adaptation to	A. Faddeeva, R. A. Studer, K. Kraaijeveld, D. Sie, B. Ylstra, J. Mariën, H. J. M. op den Camp, E. Datema, J. T. den Dunnen, N. M.	Plos ONE

	<b>Terrestrial Life</b>	<b>van Straalen, D. Roelofs</b>	
<b>Publication</b>	<b>Extrapolated long-term stability of titanium dioxide nanoparticles and multi-walled carbon nanotubes in artificial freshwater</b>	<b>Andrea Brunelli, Alex Zabeo, Elena Semenzin, Danail Hristozov, Antonio Marcomini</b>	<b>Journal of Nanoparticle Research</b>
<b>Publication</b>	<b>Quantitative rates of release from weathered nanocomposites are determined across 5 orders of magnitude by the matrix, modulated by the embedded nanomaterial</b>	<b>W. Wohlleben, N. Neubauer</b>	<b>NanoImpact</b>
<b>Publication</b>	<b>Workplace performance of a loose-fitting powered air purifying respirator during nanoparticle synthesis</b>	<b>Antti J. Koivisto, Mikko Aromaa, Ismo K. Koponen, Wouter Fransman, Keld A. Jensen, Jyrki M. Mäkelä, Kaarle J. Hämeri</b>	<b>Journal of Nanoparticle Research</b>
<b>Publication</b>	<b>Emerging systems biology approaches in nanotoxicology: Towards a mechanism-based understanding of nanomaterial hazard and risk</b>	<b>Pedro M. Costa, Bengt Fadeel</b>	<b>Toxicology and Applied Pharmacology</b>
<b>Publication</b>	<b>Organ burden and pulmonary toxicity of nano-sized copper (II) oxide particles after short-term inhalation exposure</b>	<b>Ilse Gosens, Flemming R. Cassee, Michela Zanella, Laura Manodori, Andrea Brunelli, Anna Costa, Bas G.H. Bokkers, Wim H. de Jong , David Brown, Danail Hristozov, Vicki Stone</b>	<b>Nanotoxicology</b>
<b>Publication</b>	<b>Single versus repeated applications of CuO and Ag nanomaterials and their effect on soil microflora</b>	<b>Karsten Schlich, Lukas Beule, Kerstin Hund-Rinke</b>	<b>Environmental Pollution</b>
<b>Publication</b>	<b>LICARA nanoSCAN - A tool for the self-assessment of benefits and risks of nanoproducts</b>	<b>Toon van Harmelena, Esther K. Zondervan-van den Beukenb, Derk H. Brouwerb, Eelco Kuijpersb, Wouter Fransmanb, Harrie B. Buistb, Tom N. Ligtharta, Ingrid Hincapiéc, Roland Hischierc, Igor Linkovd, Bernd Nowackc,</b>	<b>Environment International</b>

		Jennifer Studere, Lorenz Hilty, Claudia Somc	
Publication	Semi-quantitative analysis of waste flows from nano-enabled consumer products in Europe, Denmark and the United Kingdom – abundance, distribution and treatment	Laura Heggelund, Steffen Foss Hansen, Thomas Astrup, and Alessio Boldrin	Waste Management
Publication	Cu-nanoparticles ecotoxicity – Explored and explained?	Susana I.L. Gomes, Michael Murphy, Margrethe T. Nielsen, Søren M. Kristiansen, Mónica J.B. Amorim, Janeck J. Scott-Fordsmand	Chemosphere
Publication	Cellular Energy Allocation to Assess the Impact of Nanomaterials on Soil Invertebrates (Enchytraeids): The Effect of Cu and Ag	Susana I. L. Gomes, Janeck J. Scott-Fordsmand, Mónica J. B. Amorim	International Journal of Environmental Research and Public Health
Publication	Oxidative Stress Mechanisms Caused by Ag Nanoparticles (NM300K) are Different from Those of AgNO <sub>3</sub> : Effects in the Soil Invertebrate Enchytraeus crypticus	Maria J. Ribeiro, Vera L. Maria, Janeck J. Scott-Fordsmand, Mónica J. B. Amorim	International Journal of Environmental Research and Public Health
Editorial	The Daunting Challenge of Ensuring Sustainable Development of Nanomaterials	Mónica J. B. Amorim	International Journal of Environmental Research and Public Health
Publication	Effects of Ag nanomaterials (NM300K) and Ag salt (AgNO <sub>3</sub> ) can be discriminated in a full life cycle long term test with Enchytraeus crypticus	Rita C. Bicho, Tânia Ribeiro, Natália P. Rodrigues, Janeck J. Scott-Fordsmand, Mónica J.B. Amorim	Journal of Hazardous Materials

Publication	Release of 14C-labeled carbon nanotubes from polycarbonate composites	Rhiem, S, Barther AK, Meyer-Plath A, Hennig MP, Wachendorf V, Sturm H, Schäffer A, Maes HM	Environmental Pollution
Publication	Mechanisms of phenanthrene toxicity in the soil invertebrate, <i>Enchytraeus crypticus</i> .	Roelofs D, Bicho RC, de Boer TE, Castro-Ferreira MP, Montagne-Wajer K, van Gestel CA, Soares AM, van Straalen NM, Amorim MJ	Environmental Toxicology and Chemistry
Publication	The ecotoxicogenomic assessment of soil toxicity associated with the production chain of 2, 5-furandicarboxylic acid (FDCA), a candidate bio-based green chemical building block.	Chen G, van Straalen NM, Roelofs D	Green Chemistry
Publication	Gene family evolution reflects adaptation to soil environmental stressors in the genome of the collembolan <i>Orchesella cincta</i> .	Faddeeva-Vakhrusheva A, Derks MF, Anvar Y, Agamennone V, Suring W, Smit S, van Straalen NM, Roelofs D	Genome Biology and Evolution
Publication	A critical review of engineered nanomaterial release data: are current data useful for material flow modeling?	Caballero-Guzman, A.; Nowack, B.	Environmental Pollution
Publication	Evaluation of existing control measures in reducing health and safety risks of engineered nanomaterials	Oksel C., Subramanian V., Semenzin E., Ma C.Y., Hristozov D., Wang X., Hunt N., Costa A., Fransman W., Marcomini A. And Wilkins T.	Environmental Science: Nano
Section in an edited book or book series	Organisational risk management of nanomaterials using SUNDS - the contribution of CENARIOS®	Widler, T, Meili, C, Semenzin, E, Subramanian, V, Zabeo, A, Hristozov, D, and Marcomini, A.	Managing Risk in Nanotechnology: Topics in Governance, Assurance and Transfer
Section in an edited	Integrating the Social Impacts into Risk Governance of Nanotechnology	Subramanian, V., E. Semenzin, Zabeo, A, D. Hristozov, Malsch, I, Saling, P., Van	Managing Risk in Nanotechnology:

book or book series		Harmelen, T, Ligthart, T and Marcomini, A.	Topics in Governance, Assurance and Transfer
Publication	Sustainable Nanotechnology Decision Support System: Bridging Risk Management, Sustainable Innovation and Risk Governance	Subramanian, V., E. Semenzin, Zabeo, A, D. Hristozov, Malsch, I, Mcalea E., Murphy F., Mullins M., Van Harmelen, T, Ligthart,T, Linov,I and Marcomini, A.	Journal of Nanoparticle Research
Publication	Species sensitivity weighted distribution for ecological risk assessment of engineered nanomaterials: The n-TiO2 case study	Semenzin, E., Lanzellotto, E., Hristozov, D., Critto, A., Zabeo, A., Giubilato, E., & Marcomini, A.	Environmental Toxicology and Chemistry

- Presentations and Posters

Type	Title	Author(s)	Date of presentation (MM/DD/YYYY)	Event where presented
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Presentatio n	Ecotoxicity of selected NOAA on the pond snail <i>Lymnaea stagnalis</i>	Fernandes et al.	01/11-16/2015	Sustainable Nanotechnology School 2015, Venice, Italy
Presentatio n	Toxicity and biodistribution of surface chemically modified Ag nanoparticles	Chengfang Pang, Andrea Brunelli, Conghui Zhu, Danail Hristozov, Ying Liu, Elena Semenzin, Wenwen Wang, Wuqun Tao, Jingnan Liang, Antonio Marcomini, Chunying Chen, Bin Zhao	03/9-11/2015	Sustainable Nanotechnology Conference 2015
Poster	Recent Developments in Risk Assessment Efforts for Nanosilver and Nanotitania	Michael Tsang, Danail Hristozov, Chengfang Pang	03/9-11/2015	Sustainable Nanotechnology Conference 2015
Presentatio n	User Needs for a Sustainable Nanotechnology Framework	Subramanian, V., E. Semenzin, Zabeo, A, D. Hristozov, Malsch, I, Murphy F., Mullins M., Van Harmelen, T, Ligthart, T, Linov, I and Marcomini, A.	03/9-11/2015	Sustainable Nanotechnology Conference 2015
Poster	First evidence of DNA methylation in <i>E. crypticus</i>	Noordhoek, J.W., Roelofs, D., Van Gestel, C.A.M., Marien, J., Kamstra, J., Koning, J., Van Straalen, N.M.	04/8-10/2015	Principles of Ecological Genomics
Presentatio n	Comparing workers measured dust exposure with predicted exposures using a NF/FF model, NanoSafer II, and the ART exposure assessment tools	Antti J. Koivisto, Ismo K. Koponen, Alexander C.Ø. Jensen, Kirsten I Kling, Marcus Levin, Keld A. Jensen	04/12-15/2015	SENN 2015, Helsinki, Finland

Presentatio n	Risk assessment of inhalation exposure to engineered nanomaterials	Antti J. Koivisto, Kai M. Savolainen, Hannu Norppa, Harri Alenius <sup>2</sup> , Ismo K. Koponen, Keld A. Jensen, Kaarle J. Hämeri	04/12-15/2015	SENN 2015, Helsinki, Finland
Presentatio n	Comparing workers measured dust exposure with predicted exposures using a NF/FF model, NanoSafer II, and the ART exposure assessment tools	Ismo K. Koponen, Antti J. Koivisto, Alexander C.Ø. Jensen, Kirsten I Kling, Marcus Levin, Keld A. Jensen	04/12-15/2015	SENN 2015, Helsinki, Finland
Presentatio n	Demonstrating approaches to chemically modify the surface of Ag nanoparticles in order to influence their cytotoxicity and biodistribution after single dose acute intravenous administration	Chengfang Pang, Andrea Brunelli, Conghui Zhu, Danail Hristozov, Ying Liu, Elena Semenzin, Wenwen Wang, Wuqun Tao, Jingnan Liang, Antonio Marcomini, Chunying Chen, Bin Zhao	05/3-7/2015	SETAC Europe 25th Annual Meeting, Barcelona
Poster	Conceptual framework for Sustainable Nanotechnologies Decision Support System	Subramanian, V., E. Semenzin, Zabeo, A, D. Hristozov, Malsch, I, Murphy F., Mullins M., Van Harmelen, T, Ligthart,T, Linov,I and Marcomini, A.	05/3-7/2015	SETAC Europe 25th Annual Meeting, Barcelona
Presentatio n	Testing a Near Field/Far Field model for prediction of particulate matter emissions in a paint factory	A.J. Koivisto, A.C.Ø. Jensen, M. Levin, K.I. Kling, M. Dal Maso, S.H. Nielsen, K.A. Jensen and I.K. Koponen	06/15-17/2015	Aerosol Technology, Tampere, Finland
Presentatio n	„What“ gets out there? Characteristics of release during manufacturing, use, disposal.	Wendel Wohlleben	6/23/2015	Gordon Conference "Environmental Nanotechnologies" , VT, USA

Poster	Silver nanoparticle release from commercial plastic articles	Aiga Mackevica, Mikael Emil Olsson, Steffen Foss Hansen	07/7-8/2015	Quantifying Exposure to Engineered Nanomaterials (QEEN), Washington DC
Presentatio n	Control of Nanotitania surface photoreactivity to address safety issues	Simona Ortelli, Magda Blossi, Camila Delpivo, Isacco Gualandi, Domenica Tonelli, Ivana Fenoglio, Anna Luisa Costa	07/27-31/2015	International Workshop Nanoscience meets metrology: size and shape engineering of nanoparticles towards improved technology for energy, environment and health, Erice, Italy
Presentatio n	Chronic exposure to engineered nanomaterials: sedimentation kinetics by Centrifugal Separation Analysis (CSA)	Andrea Brunelli, Alex Zabeo, Elena Semenzin, Danail Hristozov, Antonio Marcomini	09/20-24/2015	15th EuCheMS International Conference on Chemistry and the Environment, Leipzig, Germany.
Presentatio n	Control of nanoAg toxicological and antibacterial activity through Safety by Design approach	S. Ortelli, D. Gardini, M. Blosi, O. Bussolati, M. G. Bianchi, M. Allegri, E. Bergamaschi, A. L. Costa	10/26-28/2015	XI NATIONAL CONFERENCE ON NANOPHASE MATERIALS, Rome, Italy
Poster	SUNDS: a Decision Support System for Sustainable Nanotechnologies	Subramanian, V., E. Semenzin, Zabeo, A, D. Hristozov, Malsch, I, Murphy F., Mullins M., Van Harmelen, T, Ligthart,T, Linov,I	11/25-27/2015	Nanotech Italia 2015, Venice ,Italy

		and Marcomini, A.		
Presentatio n	Cytotoxicity assessment of a panel of surface-modified copper oxide nanoparticles in a murine monocyte-macrophage cell line (RAW264.7)	Helena Líbalová, Lucian Farcal, Pedro M. Costa, Anna L. Costa, and Bengt Fadeel	11/4-6/2015	Companotox 2015, Spain
Presentatio n	Extrapolated long-term stability of titanium dioxide nanoparticles and multi-walled carbon nanotubes in artificial freshwater	Andrea Brunelli, Alex Zabeo, Elena Semenzin, Danail Hristozov, Antonio Marcomini	05/22-26/2016	SETAC 2016, Nantes, France
Poster	In vitro testing for identification of long term effects of copper oxide nanoparticles in fish cell lines	Lilián Galbis Martínez, Luis Alté García-Olías, María Luisa Fernández Cruz, José María Navas	05/22-26/2016	SETAC Europe Annual Meeting 2016, Nantes, France
Presentatio n	Toxicity of silver nanoparticles to soil organisms: an integrated in vitro- in vivo approach.	Makama, S., Kloet, S., De Boer, T., Piella, J., Van den Berg, H., Roelofs, D., Puntjes, V., Van Gestel, C.A.M., Rietjens, I.M., Van den Brink, N.,	05/22-26/2016	SETAC Europe Annual Meeting 2016, Nantes, France
Presentatio n	Incorporating Lifecycle Thinking in Nanotechnology Risk Control and Sustainability Assessment: The Case of Sustainable Nanotechnology Decision Support System	Semenzin E., Subramanian, V., Zabeo, A, D. Hristozov, Malsch, I, Mcalea E., Murphy F., Mullins M., Van Harmelen, T, Ligthart,T, Linov,I and Marcomini, A.	05/22-26/2016	SETAC Europe Annual Meeting 2016, Nantes, France
Presentatio n	A methodology for social impact assessment of nano-enabled products	Subramanian, V., E. Semenzin, Zabeo, A, D. Hristozov, Malsch, I, Saling, P., Van Harmelen, T, Ligthart, T and Marcomini, A.	05/22-26/2016	SETAC Europe Annual Meeting 2016, Nantes, France

Presentatio n	Extrapolated long-term stability of titanium dioxide nanoparticles and multi-walled carbon nanotubes in artificial freshwater	Andrea Brunelli, Alex Zabeo, Elena Semenzin, Danail Hristozov, Antonio Marcomini	05/22-26/2016	SETAC France 2016
Presentatio n		Maes, Hanna	05/22-26/2016	SETAC France 2016
Presentatio n	Pulmonary toxicity of CuO nanoparticles using the short-term inhalation study design	Ilse Gosens, Flemming R. Cassee, Michela Zanella, Laura Manodori, Andrea Brunelli, Anna L. Costa, Bas G.H. Bokkers, Wim H. de Jong, David Brown, Danail Hristozov, Vicki Stone	06/1-4/2016	Nanotox 2016, Boston, USA
Presentatio n	Genotoxic effect of copper oxide nanomaterial on hepatocellular carcinoma (C3A) cell line	Daniele Pantano and Vicki Stone	06/1-4/2016	Nanotox 2016, Boston, USA
Presentatio n	Short-term inhalation exposure to copper oxide nanoparticles induces gene expression changes associated with inflammation and cell proliferation in the rat bronchoalveolar epithelium	Vicki Stone , Ilse Gosens, Michela Zanella, Laura Manodori, Andrea Brunelli, Anna Costa, Bas G.H. Bokkers, Wim H. de Jong , David Brown, Danail Hristozov, and Flemming R. Cassee,	06/1-4/2016	Nanotox 2016, Boston, USA
Keynote lecture	Meeting the needs for aged and released nanomaterials required for further testing"	B. Nowack	06/1-3/2016	Nanoetch France, Paris
Presentatio n	Nanotechnology Risk Control and Sustainability Assessment	Semenzin E., Subramanian, V., Zabeo, A, D. Hristozov, Malsch, I, Mcalea E., Murphy F., Mullins M., Van Harmelen, T, Lighthart, T, Linov, I and Marcomini, A.	06/2016	SCI CHIM12 Italian congress, Lecce, Italy

Presentatio n	Characterization and properties of modified engineered nanoparticles dispersed in environmental and biological media	Elena Badetti, Alessandro Bonetto, Andrea Brunelli, Simona Ortelli, Antonio Marcomini, Magda Blosi, Luca Viale, Danail Hristozov, Anna Luisa Costa	07/3-8/2016	EUCHEM 2016, Vienna, Austria
Poster	First evidence of DNA methylation in <i>E. crypticus</i>	Noordhoek, J.W., Roelofs, D., Van Gestel, C.A.M., Marien, J., Kamstra, J., Koning, J., Van Straalen, N.M.	08/2-7/2015	Gordon Research Conference: Epigenetic Dynamics: Roles in Develoment, Inheritance, and Responses to the Environment, Boston, USA
Poster	First evidence of DNA methylation in <i>E. crypticus</i>	Noordhoek, J.W., Roelofs, D., Van Gestel, C.A.M., Marien, J., Kamstra, J., Koning, J., Van Straalen, N.M.	08/2-7/2015	Gordon Research Seminar: Mechanisms of Mitotic and Meiotic Epigenetic Inheritance, Boston, USA
Poster	Application of single particle ICPMS for tracking iron nanoparticles at environmental relevant concentrations	Jana Navratilova, Andreas Gondikas, Nicole Neubauer, Karen Bradham, Kim Rogers, Wendel Wohlleben, Frank von der Kammer	08/14-18/2016	11th International Conference on the environtmental effects of nanoparticles and nanomaterials 2016, Golden, USA
Poster	Release of radiolabeled, multiwalled carbon nanotubes from polypropylene composites:	Hennig, Michael Patrick; Siebers, N.; Treidy, S; Schäffer, A.; Maes, H. M.	09/6-10/2015	ICEENN, Vienna

	consequences for the environment			
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- Other Dissemination activities (attending, organizing events)

Attendee	Organisation	Activity	Date (MM/DD/YYYY)	Location	Type
	UNIVE, TRC	2ndSUN Stakeholders' Workshop: Seeking User Feedback on SUN Decision Support System	10/07/2015	Venice, Italy	Workshop organiser
		SETAC North America 36th Annual Meeting	11/1-5/2015	Salt Lake City, USA.	Participation
Danail Hristozov, Elena Semenzin, Lisa Pizzol, Antonio Marcomini, Stella Stoycheva, Sara Alba	UNIVE, TRC	International workshop "Lifecycle impacts of Copper nanomaterials released from timber preserving impregnations"	01/22/2016	Venice, Italy	Co-organize and participation a to the events
Danail Hristozov, Elena Semenzin, Lisa Pizzol, Alex Zabeo, Antonio Marcomini, Stella Stoycheva, Sara Alba	UNIVE, TRC	2nd Sustainable Nanotechnology School	01/24-29/2016	Venice, Italy	Co-organize and participation a to the events
Danail Hristozov, Antonio Marcomini, Stella Stoycheva	UNIVE, TRC	Society for Risk Analysis (SRA) – NanoSafety Cluster (NSC) Roundtable "From Nano Risk Management to Risk Governance: Methods and Tools"	01/28/2016	Venice, Italy	Co-organize and participation a to the events

Magda Blosi	CNR-ISTEC	Participation at the Nanodefine Synergy workshop	02/02/2016	Brussels, Belgium	Participation
	UNIVE	Workshop "Integrating Exposure and Hazard Assessment in the SUN Decision Support System (DSS)"	02/4-5/2016	Bilthoven, the Netherlands	Co-organize and participation a to the events
	UNIVE	HANDS-ON WORKSHOP ON NANO SAFETY ASSESSMENT	02/10/2016	Basel, Switzerland	Co-organize and participation a to the events
Bernd Nowack	EMPA, UNIVE	Nanotech 2016	06/1-3/2016	Paris, France	Attend, partner project
		11th International Conference on the environment effects of nanoparticles and nanomaterials (ICEENN 2016)	08/14-18/2016	Golden, Colorado, USA	SUN is a media partner project for the conference
Vicki Stone	HWU	SUN project partners co-organized the ESRIC Summer School 2016 held on 8 - 12 August 2016 in Edinburgh, Scotland, UK	08/8-12/2016	Edinburgh, Scotland, UK	Co-organization

- Promotional materials:

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Lang Tran, Institute of Occupational Medicine (Edinburgh, UK)  
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## 2<sup>nd</sup> Sustainable Nanotechnology School

A practical approach for understanding the  
environmental, health and safety implications of  
manufactured nanomaterials to foster their  
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A SUN, MODENA COST and ECONANOSORB  
training school

Campus Via Torino  
University Ca' Foscari Venice (Italy)  
Sunday 24<sup>th</sup> - Friday 29<sup>th</sup> January 2016

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## From Risk Management to Risk Governance: Methods and Tools



Università  
Ca' Foscari  
Venezia

Society for Risk Analysis / EU NanoSafety Cluster Roundtable  
Ca Foscari University, Sala Wladimiro Dorigo, Venice, ITALY  
28 January 2016

The increasing development and marketing of nanotechnologies raises fundamental Environmental Health and Safety (EHS) challenges. Even though the conventional paradigm for Risk Assessment and Management (RA&M) is applicable to nanomaterials, its implementation requires information that is difficult to obtain given the current understanding of their EHS implications. This issue is even more serious in the case of new emerging manufactured nanomaterials (MN) for which almost no EHS data are available. In order to narrow the growing gap between nanotechnology EHS research and innovation, a comprehensive Risk Governance (RG) framework is required.

The EU and US governments have funded significant efforts to bridge scientific and technological gaps that make MN safer. For example, the European Commission has established the NSC as a coordinating mechanism for EU-funded projects. The US National Nanotechnology Initiative coordinates research and investment of the US Government across multiple partner agencies. Additionally, other agencies such as the US National Science Foundation (NSF) administer an annual nano grantees meeting. The EU-US Communities of Research (CoRs) coordinate the nano-EHS research collaboration efforts between EU and US. Scientific and professional societies like the Society for Risk Analysis (SRA) have established working groups focusing on nano-EHS risks. These efforts, which aim at enhancing the feasibility of applying the conventional RA&M paradigm to MN, have shown the need to include a wider range of disciplines, and move from RA&M to RG through stakeholder engagement. This requires the development and application of methods that span beyond the RA&M, i.e. tools for cost-benefit analysis, risk communication, and risk governance of MN.

This workshop will provide a forum for cross-fertilization of current initiatives designed to foster progression of risk assessment and management towards risk governance through integration of traditional risk management tools rooted in physical science with risk governance approaches including economic and social issues evolving from social science and related disciplines. This meeting will include summaries of current activities of multiple efforts in the USA and EU as well as opportunities for leveraging future meetings and research.

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# SUN Decision Support System: Addressing Risk Management and Sustainability of Nano-enabled products

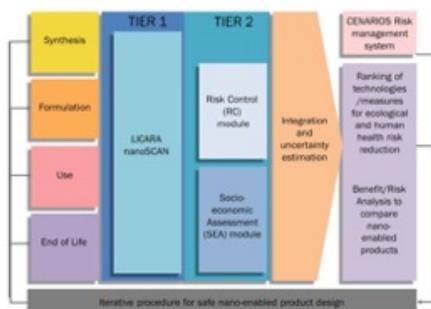


Figure 1: SUNDS Conceptual Decision Framework



Figure 2: SUNDS Tier 2 Conceptual Decision Framework

### SUNDS Tier 2 Sub-modules

**Ecological Risk Assessment (ERA)** sub-module derives ecological risk by integrating outputs from: a) an environmental exposure model that estimates Predicted Environmental Concentrations (PECs) in different environmental compartments (e.g. water, soil), and b) deterministic procedures or Species Sensitivity Distributions (SSDs) that estimate Predicted No Effect Concentrations (PNECs) for various species in the ecosystem in these compartments. Resulting ecological risk will be either deterministic (i.e.  $PEC/PNEC > 1$ ) or probabilistic (i.e. Potentially Affected Fraction of species  $> 0.05$ ) depending on the nature of exposure and effect input data.

**Public Health Risk Assessment (HHRA)** sub-module estimates the risks for humans exposed to nanomaterials via the environment by integrating outputs from: a) the environmental exposure model described above, and b) deterministic and probabilistic procedures for dose-response assessment and intra/inter-species extrapolations. The resulting estimation of human health risk will be always quantitative, but either deterministic (Exposure dose/Derived No-Effect Level (DNEL)  $> 1$ ) or probabilistic (i.e. 5% of the population has at least a 10% response with 95% confidence) depending on the nature, quantity and quality of the input exposure and effects data.

**Occupational and Consumer HHRA** sub-module derives occupational and consumer health risk by integrating outputs from: a) Human health exposure models that assess relevant occupational and consumer exposure scenarios according to three tiers (i.e. qualitative, semi-quantitative and quantitative) and taking into account the effect of applied risk management measures, and b) the above deterministic and probabilistic procedures for dose-response assessment and intra/inter-species extrapolations.

**Environmental Impact Assessment (LCIA)** sub-module accepts outputs from tools that employ Life Cycle Assessment (LCA) midpoint methodologies. Twelve midpoint impacts defined as per ReCiPe methodology are chosen to be used as criteria the SUN case studies: climate change, ozone depletion, terrestrial acidification, eutrophication, photochemical oxidant formation, particulate matter formation, ionising radiation, land use, water resource depletion, resource depletion, human toxicity and ecotoxicity.

**Economic Assessment (EA)** sub-module assesses economic impacts through the lifecycle of a nano-enabled product. This includes a methodology for insurance cost estimation based on level of risk control and cost of risk management and macroeconomic impacts of nano-enabled products.

**Social Impact Assessment (SIA)** sub-module quantitatively assesses social impacts due to a nano-enabled product on workers and communities.

The SUN (Sustainable Nanotechnologies) Project is developing an online software Decision Support System (DSS) – SUNDS – aimed at estimating and managing occupational, consumer, environmental and public health risks from nanomaterials in real industrial products along their lifecycles. In addition to this, other environmental, economic and social impacts can also be assessed to ensure overall sustainability of nano-enabled products.

**SUNDS Tier 1** of the DSS will comprise of the LICARA NanoSCAN tool developed within the FP7 LICARA project specifically for Small and Medium Enterprises, who often do not have the resources and expertise to apply complex decision support systems. Therefore, LICARA NanoSCAN is a very user-friendly screening-level tool with relatively low data requirements that provides a semi-quantitative evaluation of the environmental, social and economic benefits and the ecological, occupational and consumer health risks of nano-enabled products from lifecycle perspective.

**SUNDS Tier 2** is an integrated Risk control (RC) and Socioeconomic Assessment (SEA) module, in which the RC module comprises of three risk sub-modules (in blue, with dark grey background in Figure 2) and SEA comprises of all the sub-modules (in blue in Figure 2). These modules are described further in the box below.

In addition to the two tiers, shown Figure 1, a stand-alone module based on CENARIOS (Certifiable Nanospecific Risk-Management and Monitoring System)<sup>®</sup> standard is being included in the DSS to address organizational risk management.

**RC module** in Tier 2 (see Figure 3) integrates outputs of the ERA and HHRA sub-modules using a risk reduction inventory along the lifecycle. The Technological Alternative and Risk Management Measures (TARMM) inventory is used within this module to reduce risks to below threshold levels in a cost effective manner.

**SEA module** in Tier 2 (see Figure 4) provides a snapshot of sustainability by considering environmental, economic and social impacts. Output of all sub-modules are ranked into classes using technical thresholds and user preference profiles in order to guide the user to improve the sustainability of nano-enabled products.

The SUNDS software system is now under development and the final prototype will be released by March 2017.

### Illustration of the RC and SEA modules

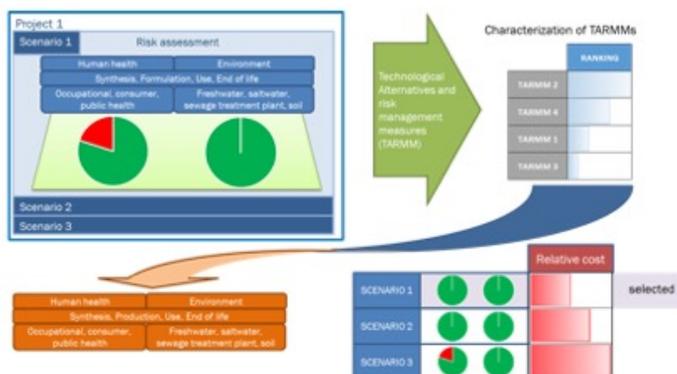


Figure 3: Example of application of the RC module

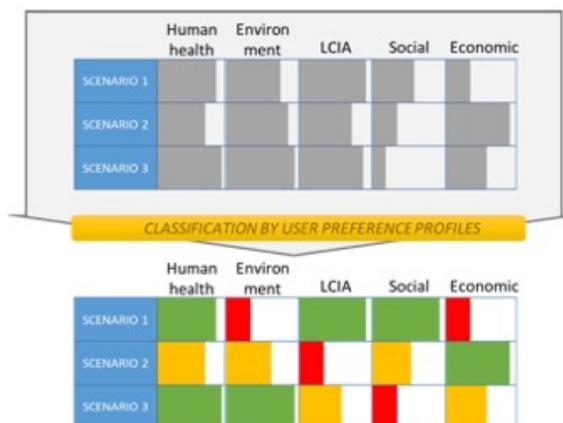


Figure 4: Example of application of the SEA module

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- Press releases:



## Sustainable Nanotechnologies Project

The REACH Centre, Lancaster Environment Centre, Lancaster University, Lancaster LA1 4YQ, UK

### Press Release



#### Results from SUN 2<sup>nd</sup> annual meeting show great advancement of the project

Venice, 19 October 2015

During their second annual meeting, held in Venice, Italy on 8-9 October 2015, SUN project partners presented the results obtained during the second 12 months of the SUN – Sustainable Nanotechnologies Project.

SUN is a three and a half year EU project, running from 2013 to 2017, with a budget of about €14 million. Its main goal is to evaluate the risks along the supply chain of engineered nanomaterials and incorporate the results into tools and guidelines for sustainable manufacturing.

The SUN project is based on the idea that the still limited knowledge about environmental and health risks of manufactured nanomaterials (MN) can nevertheless guide nanomanufacturing to avoid liabilities if risk analysis is complemented by a sound socioeconomic analysis in an integrated approach addressing the complete product lifecycle. This is the main rationale behind developing the SUN user-friendly, software-based Decision Support System (SUNDS) for managing the environmental, economic and social impacts of nanotechnologies.

The main highlight of the 2nd annual meeting was the release of SUNDS beta prototype. The SUNDS beta prototype has been presented and discussed during the second SUN stakeholders workshop held on 7 October in Venice, Italy aimed at representatives from industry, regulatory and insurance sectors. The design and implementation of the SUNDS is proceeding according to the work plan. The outlook for the upcoming months include refining the methodology, modules implementation and testing the decision support system on selected case studies (i.e. copper oxide and organic pigments).

*“The SUN Decision Support System represents a blend of most advanced models for human health and ecological risk assessment and for the first time compares the risks from nanotechnologies to their economic and social benefits in order to effectively support risk management decision making by the European nanotechnology industry”* explained Dr. Danail Hristozov, the Principal Investigator of SUN.

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## Sustainable Nanotechnologies Project

The REACH Centre, Lancaster Environment Centre, Lancaster University, Lancaster LA1 4YQ, UK

### Press Release

#### **SUN fosters international dialogue among top researchers, professionals and young scientists in the field of Nanotechnologies**

Venice, 23 February 2016

The EU FP7 SUN Sustainable Nanotechnologies Project has successfully hosted a week of high ranking, international nanotechnology events in Venice in the period 22 – 29 January 2016.

The week started with the international Workshop among experts from Europe, Russia, UK and USA titled “Lifecycle impacts of Copper nanomaterials released from timber preserving impregnations”. Organized by the EU FP7 SUN and ECONANOSORB projects, the Workshop brought together leading researchers to discuss the project results on the topics of release, fate, exposure, effects, lifecycle impacts and health risks of the Cu nanomaterials, covering both experimental and modeling approaches.



*“In contrast to the significant benefits from using Cu nanomaterials in timber preserving impregnations, there are considerable societal concerns regarding their environmental impacts and human health risks. This workshop has successfully brought together results from the projects investigating the environmental impacts and health risks of Cu nanomaterials used in timber preserving impregnations”,* says Dr. Danail Hristozov, Principal Investigator of the SUN project.

The week continued with the 2<sup>nd</sup> Sustainable nanotechnology school: a practical approach for understanding the environmental, health and safety implications of manufactured nanomaterials to foster their sustainable applications. The School was designed to revisit and complement the knowledge transferred during its previous edition with a strong focus on laboratory and modelling exercises. Attendees from 18 countries (3 continents) were exposed to top experts working in the fields of environmental, health and safety (EHS) risks and industrial applications of nanomaterials. Organized by the major European EU FP7 SUN project, ECONANOSORB and the MODENA Cost Action, the School proved to be a very successful collaboration among

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- Proceedings:



**22 JAN 2016**  
Venice, Italy

## **Lifecycle impacts of Copper nanomaterials released from timber preserving impregnations Workshop Proceedings**

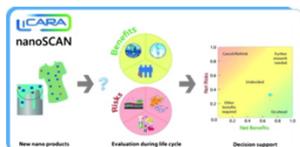
*An international workshop among experts from Europe, Russia and USA, organized by the EU FP7 SUN and ECONANOSORB projects*

- News articles:

## A publication representing the first tier of the SUN decision support system is now available on Environment International

By Stella Stoycheva in General news, News

10th March 2016



The manuscript "LICARA nanoSCAN – A tool for the self-assessment of benefits and risks of nanoproducts" representing the first tier of the SUN decision support system is now published in the journal Environment International.

You can find here the full publication:

<http://www.sciencedirect.com/science/article/pii/S0160412016300575>.

## "The SUN approach" has been accepted for publication in Environmental Science & Technology

By Stella Stoycheva in General news, News

12th February 2016

"Meeting the needs for aged and released nanomaterials required for further testing – the SUN approach" is the successful outcome of numerous discussions and ideas among many SUN partners. The manuscript has been just accepted for publication in Environmental Science & Technology Journal.

You can find here the full publication:

<http://pubs.acs.org/doi/abs/10.1021/acs.est.5b04472>.

## SUN publishes the Proceedings of the workshop “Lifecycle impacts of Copper nanomaterials released from timber preserving impregnations”

By [Stella Stoycheva](#) in [General news, News](#)

📅 14th April 2016

The international Workshop among experts from Europe, Russia, UK and USA titled “Lifecycle impacts of Copper nanomaterials released from timber preserving impregnations” recently held in Venice, Italy brought together leading researchers to discuss current results on the topics of release, fate, exposure, effects, lifecycle impacts and health risks of the Cu nanomaterials, covering both experimental and modeling approaches.

The electronic Workshop Proceedings containing extended abstracts of the studies presented during the meeting are available to download from [here](#).



## SUN hosts successfully the 5th WG7 Dissemination Training Subgroup meeting

By [Stella Stoycheva](#) in [News, NSC Working groups news](#)

📅 4th August 2016

The NSC Training group 5<sup>th</sup> meeting, held on 20 July 2016, showed good progress in terms of coordination of the ongoing training activities of the NSC projects and initiated a discussion about a new activity of the group.



You can find [here](#) the summary of the teleconference.

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28 October 2015 · 🌐

Sustainable #Nanotechnology Training School, Venice: Registration deadline approaching fast <http://ow.ly/TWWt4>



**2nd Sustainable Nanotechnology School | SUN Project**  
2nd Sustainable Nanotechnology School A practical approach for understanding the environmental, health and safety implications of manufactured...  
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**Successful SUN second annual meeting | SUN Project**  
Successful SUN second annual meeting By Stella Stoycheva in General news, News 20th October 2015  
Results from SUN 2nd annual meeting show great...  
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**Stella Stoycheva** ▶ Nanotechnology  
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We invite you to attend the 2nd Sustainable Nanotechnology School: A practical approach for understanding the environmental, health implications of manufactured nanomaterials to foster their sustainable applications.  
Early bird discount rates are available for registration received October 2015. For more information please visit:



**2nd Sustainable Nanotechnology School | SUN Project**  
2nd Sustainable Nanotechnology School approach for understanding the environmental and safety implications of manufactured...  
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Want to contribute to the better understanding of sustainable nanomanufacturing and risk management? Take a survey on Risk Management of Nanotechnology here:

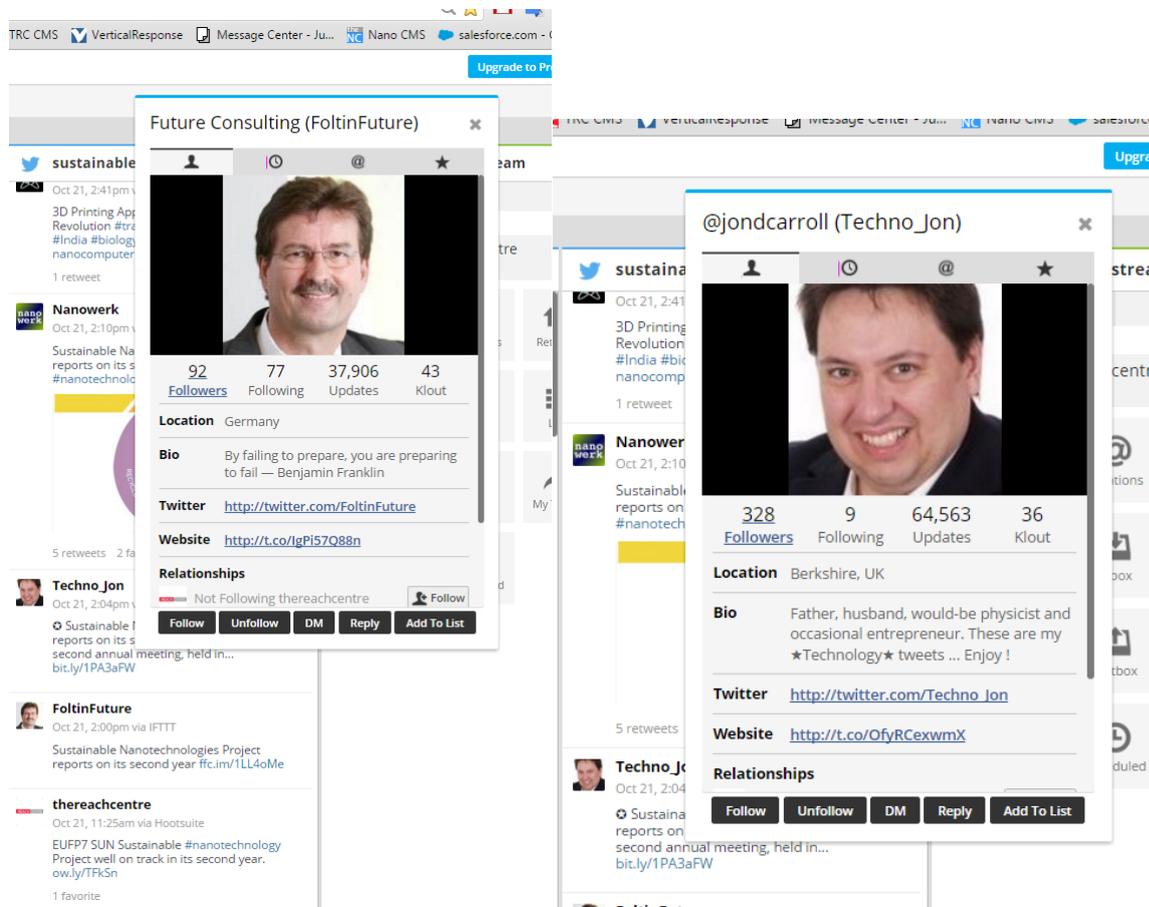
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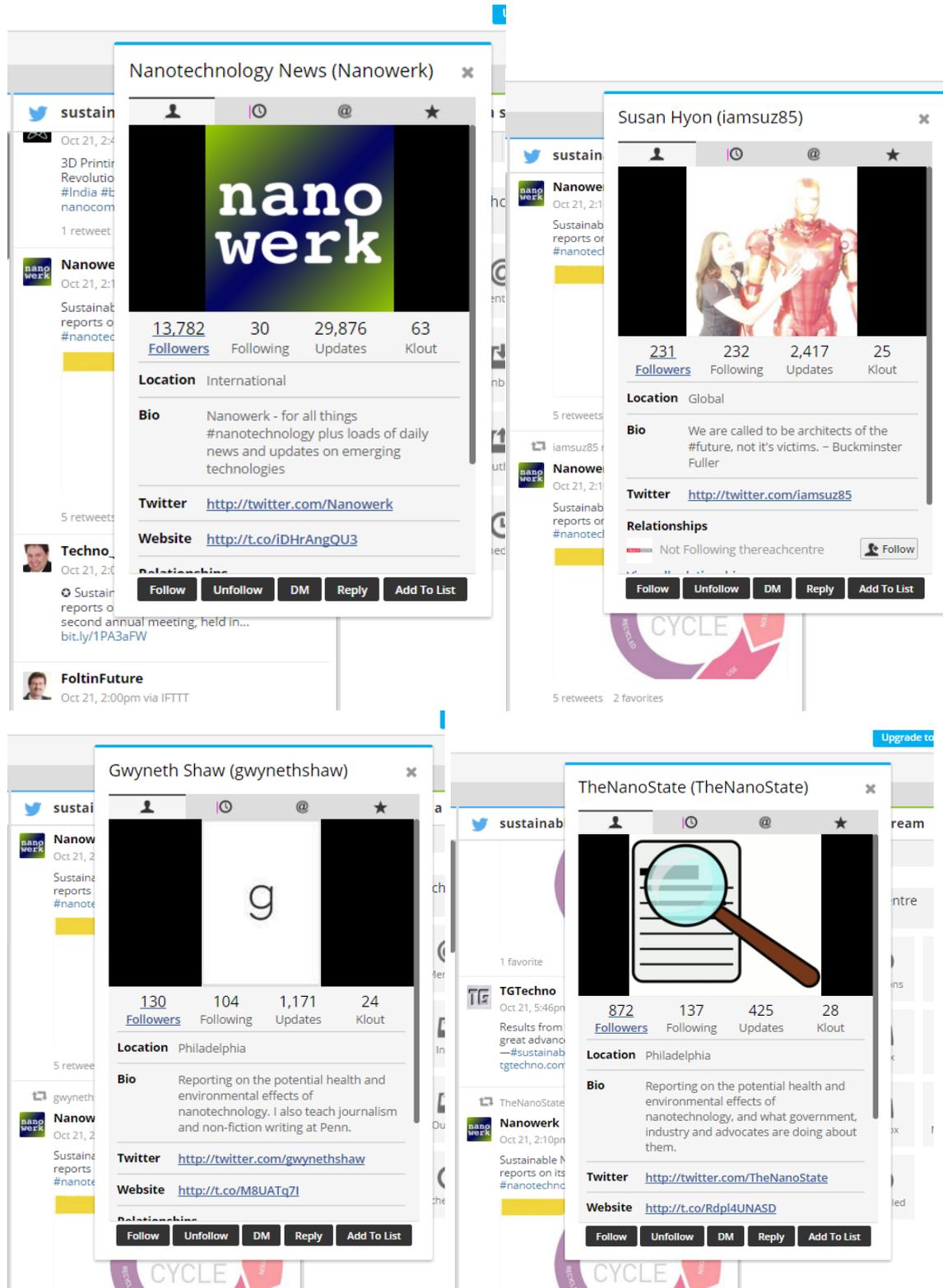
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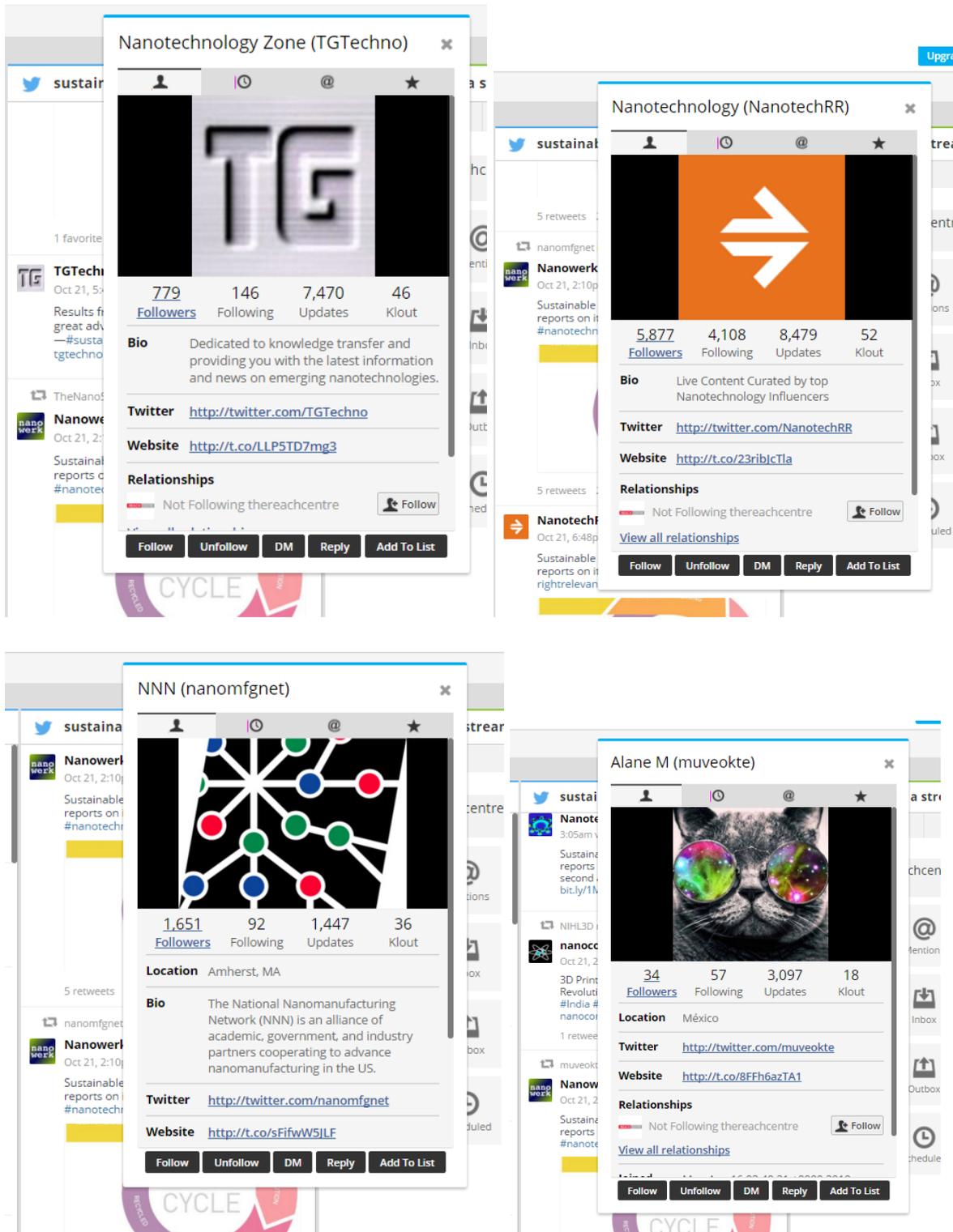
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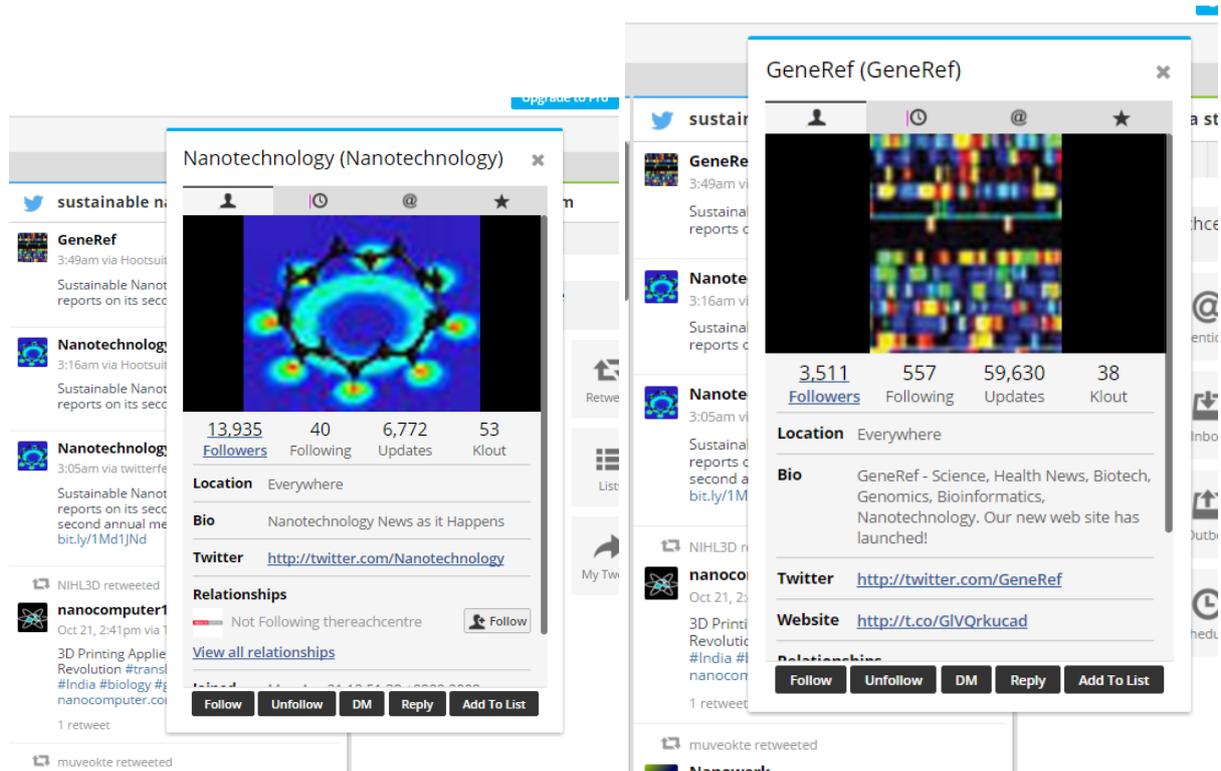
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**The REACH Centre** @thereachcentre · 28.10.2015 r.  
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- LinkedIn posts:

**The REACH Centre** Sustainable #Nanotechnology Training School, Venice: Registration deadline approaching fast <http://ow.ly/TWWt4>



**2nd Sustainable Nanotechnology School | SUN Project**  
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**Successful SUN second annual meeting | SUN Project**

ow.ly • Successful SUN second annual meeting By Stella Stoycheva in General news, News 20th October 2015 Results from SUN 2nd annual meeting show great advancement of the project During their second annual meeting, held in Venice, Italy on 8-9 October 2015, SUN project partners presented the results obt...

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Past Event

## 2nd Sustainable Nanotechnology School

24–29 January 2016

Venezia-Mestre, Italy



**Organization:** SUN, MODENA COST and ECONANOSORB

**Disciplines:** Chemistry, Earth Science, Life Science, Engineering, Materials Science

**Subdisciplines:** Analytical Chemistry, Environmental Science, Environmental Chemistry, Toxicology, Toxicology, Nanotechnology, Nanomaterials

**Event type:** Course, Seminar

**Venue:** University Ca' Foscari Venice (Italy) – campus Via Torino



**1. Second Sustainable Nanotechnology School: A practical approach for understanding the environmental, health and safety implications of manufactured nanomaterials to foster their sustainable applications.**

**Location:** University Ca' Foscari Venice (Italy), campus Via Torino

**Dates:** 24th - 29th January 2016

A SUN, MODENA COST and ECONANOSORB training school.

The achievement of safe nanoproducts requires an understanding of the properties, biological interactions, fate, risks and environmental impacts of manufactured nanomaterials. The 2nd Sustainable Nanotechnology School aims to transfer the state of the art knowledge on these aspects from key experts to the new generation nano environmental, health and safety (EHS) professionals. In order to do so the school will highlight the best available experimental and modeling approaches and practices for physicochemical characterization, (eco)toxicity testing, exposure, risk, and lifecycle assessment of nanotechnologies, taking various stakeholder perspectives and ethical issues into account. The 2nd Sustainable Nanotechnology School will revisit and complement the knowledge transferred during the 1st edition of the school with a strong focus on laboratory and modelling exercises.



Full details of the School are available at: <http://www.sun-fp7.eu/events/upcoming-events/2nd-nanoschool/>

MODENA COST is able to fund a limited number of trainees to attend this training school. For further information and to apply, please email MODENA's Action Chair, [Prof. Lang Tran](#).

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## Events

### 2nd Sustainable Nanotechnology School

 **SUN**

Sustainable Nanotechnologies Project

Event Dates: Monday, January 25, 2016 - 09:00 to Friday, January 29, 2016 - 17:00  
 Event Venue: University Ca' Foscari Venice (Italy) – campus Via Torino

The achievement of safe nanoproducts requires an understanding of the properties, biological interactions, fate, risks and environmental

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[8th International Conference on Nanomaterials - Research & Application](#)

**20 October 2016**

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## 2nd Sustainable Nanotechnology School

2nd Sustainable Nanotechnology School

**Event Opening Date:** 24. January 2016

**Event Termination Date:** 29. January 2016

**Where:**  
Venice, Italy

*The 2nd Sustainable Nanotechnology School in Venice is especially designed for personnel from research and academic institutions as well as from industry, governmental agencies and hospital departments. The School is aimed at senior researchers, young scientists, PhD students and in fact anyone dealing with nanosciences, nanotechnologies and risk assessment of nanotechnology.*



## Nanoreg related Events

### Second Sustainable Nanotechnology School

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**Second Sustainable Nanotechnology School, 2016\_01\_24-29, Venice, Italy** (Ca' Foscari Scientific Campus Via Torino)

A practical approach for understanding the environmental, health and safety implications of manufactured nanomaterials to foster their sustainable applications

A SUN, MODENA COST and ECONANOSORB training school

You can still benefit from the [early registration discount by 25 October 2015](#). Regular fee registration ends on 8 November 2015. [Guarantee your place now!](#)

Who should attend: Senior researchers, young scientists, PhD students from research and academic institutions, industry, governmental agencies and hospital departments, and in fact anyone interested in nanosciences, nanotechnologies, risk assessment and educational aspects of nanotechnology.

Please feel free to download and distribute the [School flyer](#) among your colleagues.

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Location: University Ca' Foscari Venice (Italy) - campus Via Torino

Sunday 24<sup>th</sup> - Friday 29<sup>th</sup> January 2016

Added on: January 19<sup>th</sup>, 2016

[event page >](#)



#### Round Table "From Nano Risk Management to Risk Governance: Methods and Tools"

Society for Risk Analysis - EU NanoSafety Cluster Round Table

Location: University Ca' Foscari Venice (Italy) - Sala Wladimiro Dorigo

Thursday 28<sup>th</sup> January 2016

Added on: January 19<sup>th</sup>, 2016

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## 2nd Sustainable Nanotechnology School

A practical approach for understanding the environmental, health and safety implications of manufactured nanomaterials to foster their sustainable applications: A SUN, MODENA COST and ECONANOSORB training school

**Location:** University Ca' Foscari Venice (Italy) - campus Via Torino

Sunday 24<sup>th</sup> - Friday 29<sup>th</sup> January 2016

Added on: January 19<sup>th</sup>, 2016[event page >](#)[Home](#)[About us](#)[Focus areas](#) ▾[Projects](#)[Events](#)[Team](#)[Contacts](#)Wednesday 01<sup>st</sup> - Friday 03<sup>rd</sup> March 2017Added on: September 12<sup>th</sup>, 2016[event page >](#)

## Workshop: "Lifecycle impacts of Copper nanomaterials released from timber preserving impregnations"

An international workshop among experts from Europe, Russia and USA, organized by the EU FP7 SUN and ECONANOSORB projects

**Location:** University Ca' Foscari Venice (Italy)

Friday 22<sup>nd</sup> January 2016

Added on: January 19<sup>th</sup>, 2016[event page >](#)

## News & events archive

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### From Nano Risk Management to Risk Governance: Methods and Tools

Society for Risk Analysis – EU NanoSafety Cluster Round Table



28 January 2016

Sala W. Dorigo Ca' Foscari Palace, Venice, Italy

<http://www.sun-fp7.eu/events/previous-events/round-table-from-nano-risk-management-to-risk-governance-methods-and-tools/>

- Media coverage for SUN news:

The screenshot displays the Nanowerk website interface. At the top, there is a navigation bar with links for Home, News, Nano Databases, Nano Catalog, Nano Jobs, Resources, and Introduction to Nano. A prominent banner for a 'Free Webinar' by Park SYSTEMS is featured, titled 'Dendrimers and AFM - Prof. Rigoberto Advincula, Case Western Reserve U'. Below the navigation, a 'Nanotechnology General News' section includes a search bar and social media icons. A main article titled 'Sustainable Nanotechnologies Project reports on its second year' is highlighted, dated Oct 21, 2015. The article text states: '(Nanowerk News) During their second annual meeting, held in Venice, Italy on 8-9 October 2015, SUN project partners presented the results obtained during the second 12 months of the SUN – Sustainable Nanotechnologies Project. SUN is a three and a half year EU project, running from 2013 to 2017, with a budget of about €14 million. Its main goal is to evaluate the risks along the supply chain of engineered nanomaterials and incorporate the results into tools and guidelines for sustainable manufacturing.' A diagram below the article shows a flow from 'RAW MATERIALS' to 'MATERIAL PROCESSING'. Another banner for a 'Free Webinar' is visible, dated Feb 26, 2016, with the title 'SUN fosters international dialogue among top researchers, professionals and young scientists in the field of Nanotechnologies'. The article text for this event reads: '(Nanowerk News) The EU FP7 SUN Sustainable Nanotechnologies Project has successfully hosted a week of high ranking, international nanotechnology events in Venice in the period 22 – 29 January 2016. The week started with the international Workshop among experts from Europe, Russia, UK and USA titled "Lifecycle impacts of Copper nanomaterials released from timber preserving impregnations". Organized by the EU FP7 SUN and ECONANOSORB projects, the Workshop brought together leading researchers to discuss the project results on the topics of release, fate, exposure, effects, lifecycle impacts and health risks of the Cu nanomaterials, covering both experimental and modeling approaches.' The right sidebar contains a 'Research News' section with links to 'Business News' and several news items, including 'New, carbon-nanotube tool for ultra-sensitive virus detection and identification' (Oct 07, 2016) and 'New sensor material could enable more sensitive readings of biological signals' (Oct 07, 2016). A 'Product Catalog' banner for Bruker MultiMode 8 AFM is also visible, noting it is 'Still the GOLD standard for small-sample AFM' and '3000 SOLD'.



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## Lifecycle impacts of Copper nanomaterials released from timber preserving impregnations

Posted On: 05/02/16

Proceedings from an international workshop among experts from Europe, Russia and USA, organized by the EU FP7 SUN and ECONANOSORB projects

Resource:  
<http://www.sun-fp7.eu/events/previous-events/workshop-lifecycle-impacts-of-copper-nanomaterials-released-from-timber-preserving-impregnations/>

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**Abstract:**  
 The EU FP7 SUN Sustainable Nanotechnologies Project has successfully hosted a week of high ranking, international nanotechnology events in Venice in the period 22 – 29 January 2016.

**SUN fosters international dialogue among top researchers, professionals and young scientists in the field of Nanotechnologies**

Venice, Italy | Posted on March 14th, 2016

The week started with the international Workshop among experts from Europe, Russia, UK and USA titled "Lifecycle impacts of Copper nanomaterials released from timber preserving impregnations". Organized by the EU FP7 SUN and ECONANOSORB projects, the Workshop brought together leading researchers to discuss the project results on the topics of release, fate, exposure, effects, lifecycle impacts and health risks of the Cu nanomaterials, covering both experimental and modeling approaches.

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## SUN Project 2° Annual Meeting



### SUN Project 2° Annual Meeting



8-9 October 2015

Campus Scientifico Ca' Foscari, Venice, Italy

<http://www.sun-fp7.eu/events/previous-events/2nd-sun-annual-meeting/>

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### Workshop: Lifecycle impacts of copper nanomaterials released from timber preserving impregnation

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**From** 2016-01-22 **to** 2016-01-22, Venice, IT

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***The SUN project is holding an international workshop to discuss the lifecycle impacts of copper nanomaterials at the University of Ca' Foscari in Venice, Italy on 22 January 2016***

The event, which has been organised in conjunction with the ECONANOSORB FP7-funded project, brings together experts from Europe, Russia and the USA. They will examine the work of both projects, especially in relation to the release, fate, exposure effects, lifecycle impacts and health risks of copper nanomaterials.

In addition to attracting specialists from research and academic institutions, the workshop is expected to provide valuable information for industry and governmental organisations.

For further information, please visit:

www.nanowerk.com/nanotechnology-news/newsid=40334.php

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**Photonic Sintering**  
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Posted: Jun 08, 2015

**Take a survey on risk management of nanotechnology**

(Nanowerk News) The EU FP7 Sustainable Nanotechnologies (SUN) project is based on the idea that the current knowledge on environmental and health risks of nanomaterials – while limited – can nevertheless guide nanomanufacturing to avoid liabilities if an integrated approach addressing the complete product lifecycle is applied. SUN aims to evaluate the risks along the supply chains of engineered nanomaterials and incorporate the results into tools and guidelines for sustainable nanomanufacturing.

A key objective of SUN is to build the SUN Decision Support System (SUNDS) to facilitate safe and sustainable nanomanufacturing and risk management. It will integrate tools for ecological and human health risk assessment, lifecycle assessment, economic assessment and social impact assessment within a sustainability assessment framework.

The project team is currently developing the Technological Alternatives and Risk Management Measures (TARMM) inventory and are looking for companies to fill in a [short survey of questions](#).

The goal of this questionnaire is to collect information to support the development of TARMM inventory by surveying companies that are involved in nanotechnology-related activities. Personnel who are familiar with the risk management practices in your company may be best suited to answer these questions. It consists of 12 questions related to risk management of nano-enabled products.

Source: SUN Project

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**Building a Technological Alternatives and Risk Management Measures (TARMM) inventory**

The SUN Sustainable Nanotechnologies Project is currently carrying out a short survey of 12 questions amongst the industry to build the Technological Alternatives and Risk...

**Welcome!**

The US-EU dialogue, bridging nanoEHS research, has three goals

1. Engage in an active discussion about environmental, health, and safety questions for nano-enabled products;
2. Encourage joint programs of work that would leverage resources; and
3. Support the Communities of Research.

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**TECHNOLOGY UPDATE**

Jun 22, 2016

**Dealing with the end life of nanowaste – news from Nanotech France 2016**

The impact of environmental exposure to nanomaterials continues to attract interest among researchers and the general public alike. As **Bernd Nowack** from the Swiss Federal Laboratories for Materials Science and Technology highlights, the issue can be complicated by the difference between the materials produced for applications and those released into the environment.



**WEB MOVIE**



**Key achievements and challenges in STM and AFM**

Sang Joon Cho, Chief Scientist at Park Systems, describes the company's early days and some of its most notable achievements.

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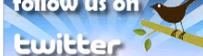
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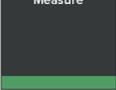
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### Results from SUNs (Sustainable Nanotechnologies) Second Annual Meeting Show Great Project Advancement

Published on October 21, 2015 at 8:07 AM

During their second annual meeting, held in Venice, Italy on 8-9 October 2015, SUN project partners presented the results obtained during the second 12 months of the SUN – Sustainable Nanotechnologies Project.

SUN is a three and a half year EU project, running from 2013 to 2017, with a budget of about €14 million. Its main goal is to evaluate the risks along the supply chain of engineered nanomaterials and incorporate the results into tools and guidelines for sustainable manufacturing.

The SUN project is based on the idea that the still limited knowledge about environmental and health risks of manufactured nanomaterials (MN) can nevertheless guide nanomanufacturing to avoid liabilities if risk analysis is complemented by a sound socioeconomic analysis in an integrated approach addressing the complete product lifecycle.



File: SUN\_D\_10\_4.docx

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- Newsletters:



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Dear <<First Name>> <<Last Name>>,  
Sustainable Nanotechnologies (SUN) project would like to share its latest news:

SUN project is co-organizing the workshop **"Lifecycle impacts of Copper nanomaterials released from timber preserving impregnations"** on 22 January 2016 in Venice, Italy. The objective of the workshop is to meet experts from Europe, Russia and USA to discuss the results of the above projects on the topics of release, fate, exposure, effects, lifecycle impacts and health risks of the Cu nanomaterials, covering both experimental and modeling approaches. Click [here](#) for more information!



SUN project will host the upcoming Society for Risk Analysis-NanoSafety Cluster Roundtable titled **"From Risk Management to Risk Governance: Methods and Tools"**. The workshop will take place on 28 January 2016 in Venice, Italy. You can download the full information about the event [here!](#)



You can also join the free **Joint workshop on risk assessment and risk management strategies applied to nanomaterials** to be held on 2 December 2015 in Madrid, Spain. The workshop focuses on the use of risk assessment tools generated by 3 LIFE funded projects. Detailed information about the workshop is available [here!](#)



**The 2<sup>nd</sup> Sustainable Nanotechnology School** to be held on 24 - 29 January 2016 in Venice, Italy has received great interest from attendees. Late registrations are accepted in a waiting list and may be confirmed in case of cancellations of other participants. If you are interested in the event please contact us at [corsi.challengeschool@unive.it](mailto:corsi.challengeschool@unive.it). More information about the school can be found [here!](#)

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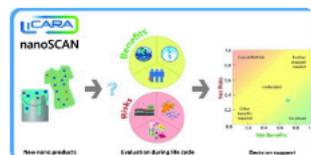
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Dear <<First Name>> <<Last Name>>,  
Sustainable Nanotechnologies (SUN) project would like to share its latest news:

SUN is proud to announce the publication of the **“LICARA nanoSCAN – A tool for the self-assessment of benefits and risks of nanoproducts”** - a manuscript representing the first tier of the SUN decision support system. More information and the full manuscript are available [here!](#)

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**“Meeting the needs for aged and released nanomaterials required for further testing – the SUN approach”** - the successful outcome of numerous discussions and ideas among many SUN partners has been accepted for publication in Environmental Science & Technology Journal. You can find here the [full manuscript!](#)



The Sustainable Nanotechnologies Project has successfully hosted a week of high ranking, international nanotechnology events in Venice in the period 22 – 29 January 2016. Click [here](#) for the full press release!



SUN project is actively engaged and leading the NanoSafety Cluster (NSC) WG7 Dissemination Training Subgroup and WG6 Risk. For bi-monthly updates about the groups' progress, please follow our news [here!](#)

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Dear << Test First Name >> << Test Last Name >>,  
Sustainable Nanotechnologies (SUN) Projects  
would like to wish you happy holidays!



## Best Wishes!

Wishing you a beautiful holiday season  
and a new year of peace and happiness!



SUN will host the upcoming Society for Risk Analysis-NanoSafety Cluster Roundtable titled **"From Risk Management to Risk Governance: Methods and Tools"**. The workshop will take place on 28 January 2016 in Venice, Italy. You can download the full information about the event [here!](#)



Abstract Submissions for  
NANOTECH FRANCE  
2016 Conference and  
Exhibition are now open. Please find  
[here](#) full information about the  
conference.



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Dear <<First Name>> <<Last Name>>,  
Sustainable Nanotechnologies (SUN) project and its partners  
would like to invite you to save the dates for the following  
upcoming events in 2017:

Join us for the  
**Society for Risk Analysis Policy Forum**  
**Risk Governance for Key Enabling Technologies**

**1 - 3 March 2017, Venice, Italy**

**Topics:** The discussion topics for this Forum will center on emerging risk issues of key enabling technologies such as traditional risk assessment (detection, toxicology, fate, and material exposure), risk communication (stakeholder engagement), and more novel approaches (risk governance under uncertainty).

**Call for abstracts:** You will have the opportunity to present your findings on the above topics on a global stage! Submit your abstract by **15 September 2016** [here](#).

**Further information:** Click [here](#) for more information and expect soon the key note speaker announcement!

**Organizers:**



The **SUN** and **CaLIBRAte** projects are jointly organising a two-day Stakeholders Workshop in Venice, Italy. The meeting welcomes consortium members from the organizing projects as well as representatives from industry, regulatory and insurance sectors. Save the dates **28 February - 1 March 2017** on your calendar! Please expect soon more information [here](#).



Jointly organized by five major FP7 projects NANOSOLUTIONS, GUIDEnano, SUN, NanoMILE and eNanoMapper, the **New Tools and Approaches for Nanomaterial Safety Assessment Conference** aims at presenting the main results achieved in the course of the projects fostering a discussion about their impact in the nano safety field and possibilities for future research programmes. The conference welcomes consortium partners from the organizing projects, as well as representatives from other EU projects, industry and government dealing with nanosafety research. The event will be held on **7 - 8 February 2017** in Malaga, Spain.

For more information please visit [www.nmsaconference.eu](http://www.nmsaconference.eu)!



SUN project is actively engaged and leading the NanoSafety Cluster (NSC) WG7 Dissemination Training Subgroup and WG6 Risk. For bi-monthly updates about the groups' progress, please follow our news [here](#)!



Dear << Test First Name >> << Test Last Name >>,

We are excited by the substantial number of good quality submissions that have already been submitted. However, due to numerous requests, we are pleased to announce that the deadline for abstract submissions for the SRA Policy Forum: Risk Governance for Key Enabling Technologies is now extended until **15 October 2016**.



**Society for Risk Analysis Policy Forum**  
**Risk Governance for Key Enabling Technologies**

**Organizers:**



**Extension of deadline for abstract submission!**

The extended deadline for abstract submission is **Saturday, 15 October 2016**. This will be the final deadline – submit your abstracts now!



**Topics:**

The discussion topics for the SRA Forum will center on emerging risk issues of key enabling technologies such as traditional risk assessment (detection, toxicology, fate, and material exposure), risk communication (stakeholder engagement), and more novel approaches (risk governance under uncertainty).

**When?**

1<sup>st</sup> – 3<sup>rd</sup> March 2017

**Speakers:**

International experts from Europe and the United States have been invited:

- Keld Alstrup Jensen (National Research Centre for the Working Environment, Denmark)
- Elke Anklam (European Commission, Belgium)
- Adam Arkin (University of California, Berkeley, USA)
- Phil Demokritou (Harvard University, USA)
- Gerard Escher (École polytechnique fédérale de Lausanne, Switzerland)
- Lisa Friedersdor (National Nanotechnology Initiative, USA)
- James Lambert (President, Society for Risk Analysis, USA)



Dear << Test First Name >> << Test Last Name >>,  
 We remind you about the deadline for abstract submissions for the  
 SRA Policy Forum: Risk Governance for Key Enabling Technologies  
 Italy to be held on 1 - 3 March 2017 in Venice, Italy!



**Society for Risk Analysis Policy Forum  
 Risk Governance for Key Enabling Technologies**

**Organizers:**



**Don't miss out to submit your abstract by 15 SEPTEMBER!**

You will have the opportunity to present your findings on a global stage! You haven't submitted an abstract yet? The deadline for abstract submissions ends on **15 September 2016**.

[Submit Your Abstract Here!](#)

**Topics:**

The discussion topics for the SRA Forum will center on emerging risk issues of key enabling technologies such as traditional risk assessment (detection, toxicology, fate, and material exposure), risk communication (stakeholder engagement), and more novel approaches (risk governance under uncertainty).

**When?**

1<sup>st</sup> - 3<sup>rd</sup> March 2017

**Who should attend?**

The SRA Forum is targeted for personnel from research and academic institutions as well as from industry, governmental agencies, and other relevant organizations. The forum is aimed at senior researchers as well as interested in nanotechnology, industrial and medical biotechnology, synthetic biology, advanced materials, and advanced manufacturing technologies. The convergence of various perspectives on these topics will create helpful discussion related to the risk perception, management, and governance of these emerging technologies.

**Speakers:**

International experts from Europe and the United States have been invited:

- Ortwin Renn (University of Stuttgart, Germany)
- Keld Alstrup Jensen (National Research Centre for the Working Environment, Denmark)
- Bernd Nowack (EMPA, Switzerland)
- Wendel Wohlleben (BASF, Germany)
- Vicki Stone (Heriot-Watt University, UK)
- Andre Nel (The University of California, Los Angeles, USA)
- Adam Arkin (The University of California, Berkeley, USA)
- Phil Demokritou (Harvard University, USA)
- Lisa Friedersdor (National Nanotechnology Initiative, USA)
- Elke Anklam (European Commission, Belgium)

**Where?**

The SRA Forum will be held at Ca' Foscari University and [Cultural Center Don Orione Artigianelli](#), located in the historic center of Venice, Italy. The Cultural Centre is a vast architectural complex composed by four cloisters and other numerous buildings dating back from 15th century. Originally established as a monastery, today the center features modern fully-equipped conference and accommodation