



**Welcome** to the Spring 2019 issue of the NSC Newsletter, reflecting a busy and industrious period for cluster projects and beyond.

The **NSC Dissemination group** has been particularly active and has engaged in highly useful [Common Dissemination Booster Training](#) which is coming to fruition in new dissemination developments that include the forthcoming **NSC Dissemination Group Webinar Series** delivering regular, well-publicised webinars to present outcomes from NSC projects, focusing in particular on new projects, closing projects and updates from running projects. There will be three webinars a year lasting up to 75 minutes and featuring 4-5 projects per webinar. Each one will be recorded and hosted on YouTube. Projects can apply to present on a webinar and will be prioritised for strength of their dissemination message about actual project outcomes, rather than a project update. For more information, email [news@nanosafetycluster.eu](mailto:news@nanosafetycluster.eu)... And watch this space!

In a significant development the NSC has launched an **Open Access Community on Zenodo**, where you can find the public NSC outputs and access NSC related publications and public projects deliverables as well as the NSC Newsletters and Compendiums of projects. <https://zenodo.org/communities/nsc>.

To kick off this issue, in our Coordination Team update, find out about the progress of the [Nanosafety in Europe 2015-2025](#) roadmap, and the Cluster's dynamic role in internationalisation initiatives and in particular EU-US cooperation in Nanosafety.

In [NSC Project News](#), we have important updates from current projects, as well as introductions to [NanoinformaTIX](#) and [Gov4Nano](#). Later, [on p.23](#) we are proud to profile [Mónica Amorim](#) (UAVR) of the [NANORIGO](#) project who has been selected for a Portuguese book on "Women in Science" where they describe **an outstanding female scientist** who can act as a lighthouse for others.

In our [Events section](#) on [page 31](#) you can find out about the 13 nanosafety and innovation projects that are coming together within a NanoSafety Cluster pavilion at EuroNanoForum 2019, June 12-14 2019, Romania. Save the date later in the year for the [EU-U.S. NanoEHS Communities of Research \(CORs\) Workshop](#) in Aix en Provence. Details are on [page 34](#).

Finally, thank you to everyone who has contributed and subscribed to the newsletter. We hope you enjoy reading it

Kind regards  
**Lesley Tobin**  
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## Contents:

<b>Welcome, contents, links</b>	<b>1</b>
<b>NSC News</b>	<b>2</b>
Update from the Coordination Team	2
NanoSafety Cluster Week	5
Insights from the CDB Training	6
<b>NSC Project News</b>	<b>7</b>
NanoFASE Reports – NIA Symposium	7
NanoFASE Science Highlights – Malta 2019	9
News from NanoCommons	10
BIORIMA, GRACIOUS & NanoInformaTIX training school	12
NanoExplore updates	14
OpenRiskNet Case Studies report	15
Introducing NanoInformaTIX	17
Gov4Nano Kicks Off	18
Spotlight on Release Nano_Tox	19
<b>In Other News</b>	<b>22</b>
Nano in Action Webinar Series	22
BioNanoNet Newsletter	22
Mónica Amorim distinguished in "Women in Science"	23
JRC Publishes Science for Policy Report	24
<b>Job Opportunities</b>	<b>25</b>
CIFRE Thesis (LNE)	25
JRC Exploratory Research vacancy	25
Post-doc Associate (NanoInformaTIX)	26
<b>Training Courses</b>	<b>27</b>
EFMC Training	27
<b>Call for Proposals</b>	<b>27</b>
JRC Nanobiotechnology Laboratory invites calls	27
<b>Events—Conferences &amp; Workshops</b>	<b>28</b>
<b>About the NanoSafety Cluster</b>	<b>36</b>

## Links:

Send your news to the NSC Newsletter [here](#):  
[www.nanosafetycluster.eu/news/submit-news.html](http://www.nanosafetycluster.eu/news/submit-news.html)

Subscribe to the Newsletter [here](#):  
[www.nanosafetycluster.eu/newsletter/subscribe.html](http://www.nanosafetycluster.eu/newsletter/subscribe.html)

Join the NanoSafety Cluster LinkedIn group [here](#):  
[www.linkedin.com/groups/EU-NanoSafety-Cluster-7471509](http://www.linkedin.com/groups/EU-NanoSafety-Cluster-7471509)



@eunanosafety



## Update from the NanoSafety Cluster Coordination Team – April 2019

As part of our ongoing efforts to enhance the transparency of the NSC coordination team activities and keep the wider NSC membership and stakeholders informed of upcoming events, in the last newsletter we introduced this feature by recapping on the activities of 2018. Here we recap on activities in the first quarter of 2019 and give some signposting to forthcoming events and plans.

The 4-member Coordination team consists of [Éva Valsami-Jones](#) (overall NSC coordinator), [Flemming Cassee](#) (lead for **regulatory** engagement), [Andreas Falk](#) (lead for **industrial** engagement) and [Iseult Lynch](#) (lead for **scientific** engagement), supported by Anastasios (Tassos) Papadiamantis ([NanoCommons](#)) in the organisation, minute taking, website development etc. All play an important role in supporting the NSC's internationalisation strategy.

### Overall Coordination

- Following on from the NSC self-assessment, we undertook a 2-year evaluation of the “new” NSC structure and how well it is functioning, as well as discussing rotation of leadership including of the Working Groups. A short survey [[Link](#)] was circulated to the NSC members -this remains open until the end of April, so please do share your views and feedback – it only takes a couple of minutes to complete (3 short questions). Follow-up activities will be held to reinvigorate the WGs and ensure that projects are contributing across all relevant WGs.
- Monthly coordination team teleconferences and Steering Group (SG) teleconferences, as well as ad hoc SG teleconferences to review the NSC structure and progress, and to discuss and agree the finalisation of the report from the TiO<sub>2</sub> Task force.
- Launching a review of progress towards delivering the NSC Roadmap 2015-2025. As we approach the turn of the new decade, along with the half-way point of the ambitious nanosafety roadmap published by the NSC - [Nanosafety in Europe 2015 - 2025](#) it is timely to take stock of progress to date, and identify areas where targets have been achieved or even exceeded, and areas where additional focus and push may be needed. The original roadmap focussed around 4 key areas: Nanomaterial identification and classification; Exposure, transformation and the life cycle; Hazard mechanisms, biokinetics, and vulnerable populations; and Risk prediction and management tools. Each topic had a set of milestones to be achieved by 2015, 2020 and 2025, with the overall targets as shown in Figure 1 below.

Over the next 6 months, the WGs will examine these milestones, and collate the evidence to demonstrate achievement of these, reiterate where definitive conclusions can be drawn, and suggest remediative action where needed to further push progress forward. The actions identified in this manner will help to focus the activities of the Working Groups over the next 3-4 years, and new sets of targets for nanosafety for 2025, 2030 and beyond will be established based on current knowledge, and the evolved set of stakeholder needs. In addition to the overall roadmap, the three specific roadmaps ([CTTM](#), [RRR](#), [NanoInformatics](#)) developed in the frame of NSC will be taken into account during the half-way review. Iseult and Flemming are leading on this activity.

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Time	Material	Exposure	Hazard	Risk
2015	Reference methods and nano-bio-interactions	Laboratory and computer simulations	Systems biology approaches available for hazard research	Improved risk communication and tools for risk assessment
2020	Data sets on reference ENM	Database on release	Understanding the association between material characteristics and hazard	Models and standards available
2025	Key metrics for harmful impact	Laboratory tests and models available for exposure assessment	A tool for safety assessment	A tool for the integration of safety by design strategies  Guidance, tools, and automation

Figure 1: Summary of the thematic roadmap and research needs identified in the NSC Nanosafety in Europe 2015-2025 roadmap.

## Internationalisation

Several international delegations have already taken place in 2019, despite it only being April. These include:

- EU delegation to **Mexico** (January 22 - 24, 2019, Centro de Nanociencias y Nanotecnología, Ensenada, Mexico) which was organised by Flemming Cassee and our local host Andrea de Vizcaya Ruiz from Conacyt. Several NSC projects were presented there in order to stimulate collaboration, including ACEnano, CaLIBRAte, Gracious, NanoCommons, PATROLS, SmartNanoTox, and the new Modelling projects NanoSolveIT and NanoInformaTIX and Risk Governance Projects RiskGone, NanoRIGO and Gov4Nano. Several areas for cooperation and engagement were identified. The meeting report is available [here](#).
- The BILAT USA 4.0 project supported by Flemming Cassee organised a workshop on “Fostering EU – US cooperation in Nanosafety” at Harvard University in Boston on 5<sup>th</sup> and 6<sup>th</sup> March 2019. The BILAT USA 4.0 project is a European Union funded project with the aim of enhancing and developing science, technology, and innovation (STI) partnerships between the U.S. and Europe. Starting from the presentation of the ongoing policies, initiatives and projects on nanosafety in Europe and US, and basing the discussion on the state of implementation of roadmap Nanosafety in Europe 2015-2025 roadmap (see above) participants from both sides of the ocean addressed two main questions:
  1. What should be the future research priorities in nanosafety?
  2. What are the opportunities for EU-US cooperation priorities in nanosafety?

... cont'd/

... cont'd/ Update from the NanoSafety Cluster Coordination Team – January 2019

The answer to these questions will lead to the drafting of recommendations to be shared with both the European Commission and the relevant US funding agencies in view of the upcoming Horizon Europe. On behalf of the NSC and several projects, Maria Dusinska (RiskGone, NanoSolveIT), Andrea Haase (GRACIOUS and NSC informatics roadmap), Steffi Friedrichs (Gov4Nano), Janeck Scott-Fordsmand (nanoRigo) and Flemming Cassee (NSC and PATROLS) participated in this event. A meeting report will be published before the summer. The European Commission was represented by Mary Kavanagh, Minister-Counsellor, Research and Innovation.

- On 18<sup>th</sup> of March, 2019, the 3<sup>rd</sup> edition of the “**EU-Asia Dialogue on Nanosafety**” took place in Bangkok, Thailand. The aim of the EU-Asia Dialogue on Nanosafety is to exchange information, knowledge and experience, as well as sharing resources between the major players from the EU and Asia. The main topic of the 3<sup>rd</sup> Dialogue event was “Occupational Exposures to Manufactured Nanomaterials and Waste Disposal”. The decision to focus on occupational exposure and waste disposal was based on the discussion held between OECD and CDC – The National Institute for Occupational Safety and Health (NIOSH) program which gives importance to life cycle assessment of manufactured nanomaterials and related exposure scenarios in workplaces. Discussions followed the defined subgroups from the 1<sup>st</sup> and 2<sup>nd</sup> dialogue events. Significant steps forward could be made towards further strengthening this dialogue by creating a steering committee, telephone conferences will be undertaken to ensure continuous progress. The NSC-CT will update in the NSC-newsletter about the 4<sup>th</sup> edition of the EU-Asia Dialogue on Nanosafety. The preparation of the event was supported by Andreas on behalf of the NSC-CT, and Susanne Resch (BNN) on behalf of Gov4Nano-project. Participants from several EU projects attended, including NanoFASE (Ralf Kägi who gave an invited talk), HISENTS (Nicola William), npScope and RiskGone (Tomasso Serchi) and Gracious (Danail Hristov) each of who Chaired breakout sessions. The meeting report will be available shortly.

## NSC meetings, events and conferences (including upcoming)

- The **EuroNanoForum** is taking place in Bucharest on 12-14<sup>th</sup> June 2019. The Nanosafety Cluster will have a pavilion at the event, with a programme of activities for all stakeholders. Dedicated nanosafety sessions on “Safe by design and Open Innovation Testbeds”, “Governance and Standardisation” and “Characterisation and Modelling” are planned, and all are welcome to join. Eva and Andreas (on behalf of ACEnano-project) will co-organise those sessions. The link for registration is [here](#) (see [page 31](#)).
- NanoSafety Week** is coming! The week of 7-10<sup>th</sup> October 2019 will be an intensive week of nanosafety activities focussed on Building confidence in risk assessment and governance of Nanomaterial Innovation.

The programme of activities is:

- October 7: caLIBRAte final workshop on risk assessment and governance
- October 8-9: NanoSafety Cluster conference “**Towards *in silico* nanosafety assessment – integrating experimental and computational approaches**” supported by the NanoCommons research infrastructure, and the nanoinformatics projects NanoSolveIT and NanoInformaTIX. Abstract submission (oral and poster) opening shortly.
- October 10: NanoSafety Cluster **open meeting** and caLIBRAte NanoRisk Governance Portal training.  
[See p5 for more information.](#)

- The **EU-US CoRs** (Communities of Research) annual meeting will be held in Aix en Provence on 15<sup>th</sup> and 16<sup>th</sup> October, so mark your calendars for this also. You can follow updates on this dedicated to the meeting [[link](#)]. See [page 34](#)

The next newsletter will include further updates on these and other activities, and in the meantime, please get involved in Task Forces, Working Groups and give your feedback via the survey [[Link](#)] or directly to [i.lynch@bham.ac.uk](mailto:i.lynch@bham.ac.uk).

Iseult Lynch on behalf of the NSC Coordination team

## NanoSafety Cluster Week

### Building confidence in risk assessment and governance of nanomaterial innovation

October 7-10, Copenhagen



The NanoSafety Cluster is pleased to announce 4 days dedicated to “**Building confidence in risk assessment and governance of Nanomaterial Innovation**” in Copenhagen, October 2019.

The 4-day event kicks off with the **caLIBRAte final workshop** focussed on current knowledge and future outlook on stakeholder risk perception and information needs and nanosafety data availability. caLIBRAte also presents nano-specific human and environmental risk assessment and management tools tested in the project, plus the decision support tool developed, the NanoRisk Governance Portal.

A two-day **Nanosafety Cluster Scientific Conference** then follows, organised and sponsored by the projects NanoCommons, NanoSolveIT and NanoInformaTIX, focussed on the increasingly important roles of data accessibility and predictive modelling in nanomaterials governance and risk assessment.

**NanoSafety Cluster business** closes the week, including an open NSC meeting to which all are welcome to contribute, Working Group meetings to progress key community-driven activities, and a Steering Group meeting. In parallel, a training session on the **caLIBRAte Nano Risk Governance Portal** and underlying risk assessment, management and decision support tools will be offered.

#### NanoSafety Cluster Week

- October 7: caLIBRAte final workshop on risk assessment and governance
- October 8-9: NanoSafety Cluster conference Towards in silico nanosafety assessment – integrating experimental and computational approaches.
- October 10: NanoSafety Cluster Open meeting and caLIBRAte NanoRisk Governance Portal training

#### Register now

Visit [www.nanocalibrate.eu/calibrate-closing-conference](http://www.nanocalibrate.eu/calibrate-closing-conference) to express an interest in taking part and you will be contacted when full registration opens.



## Insights from the Common Dissemination Booster Training

The **NanoSafety Cluster Dissemination and Training working groups** are happy to announce that following the successful completion of a Dissemination Capacity Building Course (kindly supplied by the 'Common Dissemination Booster' (CDB) service of the European Commission), we are now in the middle of our "Dissemination Campaign in Practice" course.

In this course, a core group of NSC dissemination experts are working closely with the CDB team to deliver successful and effective dissemination campaigns.

A number of actions and task leaders have been identified to support the successful delivery of the NSC joint dissemination plan featuring:

- Development of the new NSC website
- Ensuring NSC outputs are properly disseminated and "FAIR" using open science repositories
- Developing policy brief documents
- Enhancing NSC social media communication
- Developing a number of guidelines and best practices (e.g. how to develop policy briefs, best approaches to lead and coordinate working groups, guidelines for using OpenAire/Zenodo platforms)

As part of our ongoing activities, we are happy to support the launch of the NanoSafety Cluster promotional webinars 2019.

The NSC will launch three dissemination webinars per year, through which projects can present recent achievements and opportunities for stakeholders. These webinars will be open for all interested stakeholders to attend and will also be recorded and hosted on YouTube.

**Info for registration, deadline,** etc. is to be confirmed but if you wish to join the CDB training please contact Stella Stoycheva ([s.stoycheva@yordasgroup.com](mailto:s.stoycheva@yordasgroup.com)).

**Best regards,  
NSC CDB Team**

Stella Stoycheva: Dissemination Executive for GRACIOUS and CDB Service Contact Point

Judith Friesl: Dissemination Manager for GRACIOUS and NSC Communication, Training and Education WG Co-Chair

Claire Skentelbery: NSC Dissemination WG Chair

Claire Mays: NSC Dissemination WG Co-Chair



### Common Dissemination Booster

The **Common Dissemination Booster** (CDB) is a brand-new service from the European Commission which is free of charge and available to all, ongoing or closed, European, National, Regional funded Research & Innovation (R&I) projects (H2020, FP7 or other). The booster encourages projects to come together to identify a common portfolio of results and shows them how best to disseminate to end-users, with an eye on exploitation opportunities.

- Brand-new service from the European Commission
- Professional support to disseminate results from your R&I Project Groups
- Free of charge
- Available to all European and nationally-funded Research & Innovation (R&I) projects

Trust-IT Services provides all Common Dissemination Booster services on behalf of the European Commission.



## NanoFASE Reports: NIA 8th Annual Symposium, March 2019



### Industry, Regulators and Academics working together towards sustainable and profitable nano-enabled solutions

Event reported by Claire Mays, NanoSafety Cluster Dissemination Group (and NanoFASE)

**Question:** Where can you meet twenty NanoSafety Cluster (NSC) projects<sup>1</sup> and one Project Officer without going to a NanoSafety Cluster meeting?

**Answer:** At the Nanotechnology Industries Association (NIA) 8th Annual Symposium!

Brussels Rue Royale was the place to be on 27 March 2019 when NIA Director General **Claire Skentelbery** and Director of Regulatory Affairs **David Carlander** welcomed about 50 industry representatives, regulators, EC officials and academics to the 8th NIA Annual Symposium. Eleven high-level speakers took all these stakeholders on a state-of-the-art tour of issues, concerns and perspectives in nano innovation and safety. Panels, a roving microphone, and relaxed coffee/meal breaks made for real opportunities to talk, explain the Cluster project exhibits, and network. [Read our detailed report](#) about these highlights and more:

‘Nanotechnology into the future’: **Carlos Eduardo Lima da Cunha** (EC) –well-known to the Cluster as Cadu—situated ‘Nano in Europe’ through multiple variations of a mind map with Governance at its centre. Cadu argued that nano is no longer an exotic chick, but a full-fledged advanced material (AM); scalability, marketability and Open Innovation Test Beds are appropriate concepts when moving towards a new endpoint of ‘Sustainability by Design’.

**Gregor Schneider** (RAS AG) addressed ‘Nano in Business’, showing the interplay of science, regulatory awareness and business sense when stewarding the development of nanosilver biocides. Schneider mapped topics on which clients have concerns and distilled the messages that producers must be prepared to convey in reply (see text box).

Aspects of NM production	Client's concerns	Producer reply message
Development phase	Why use NM?	USP particle size, unique properties, durability
Particle release	Will functionality be lost?	Laundry tests, exposure scenarios
General toxicity	Risk profile of the NM?	Substance dossier, sensitisation assays
Marketability	Active substance OK in EU for this claim?	EU BPR528/2012 compliance, confirmation
Availability, constant quality	Will supply falter?	QMS ISO certified, Patent on production process

*Adapted and generalized from Gregor Schneider (RAS AG)*

‘Regulation and standards priorities’: **Abdelqader Sumrein** (ECHA/EUON) said that ECHA will update (non-binding) guidance on the ‘best/safest way’ for companies to meet the new REACH information requirements, fast-tracking work on read-across guidance to align with the new terminology of forms and sets. **Kai Paul** (Blue Frog Scientific Ltd) showed the potential for a consistent ‘use map’ methodology to pinpoint registration liabilities/check compliance across the entire NM life cycle.

‘What goes around – Nano in waste’: **Tobias Walsler** (Vereala) said a key challenge today is identifying the removal efficiency of NM by different full scale waste treatment options, with a particular focus on waste incineration plants. The recovery of NM from incineration residues is difficult due to their dispersion, their size, and typically their low quantity. ...cont'd/

<sup>1</sup> caLIBRAte, CARMOF, EC4SafeNano, Gov4Nano, HISENTS, INSPIRED, INTEGRAL, M3DLoC, NanoCarb, NanoCommons, NanoFASE, NANOGENTOOLS, NanoID, nanoInformaTIX, NanoReg2, NanoSTREEM, NECOMADA, npSCOPE, PATROLS, SmartNanoTOX.

... cont'd/ NIA 8th Annual Symposium, March 2019

**Ralf Kägi** (EAWAG) presented ‘Perspectives from research –NanoFASE (Nanomaterials Fate and Speciation in the Environment)’. Kägi’s group [investigates the fate and transformation](#) of engineered NM in wastewater treatment systems. Silver and copper studies revealed key processes, such as sulfidation within the reactors. Thus, what goes into waste reactors is not what comes out, and biota are not exposed to pristine particles.

**NIA Members** shared their own processes and potential challenges in waste from an environmental perspective. Industrial processes consciously minimise wastage or loss of expensive NMs during production phases. Realistic cases therefore treat nanowaste generated during usage phases, or the fate and transformation of particles reaching waste management systems at end of life phases. Incineration products are not nano-specific, and conventional extraction procedures and recommendations on incineration temperatures apply.

**David Carlander** (NIA) reviewed ‘Regulatory frameworks around waste’. The Waste Framework Directive 2008/98/EC says waste is any substance the holder discards, intends or is required to discard. NMs have no specific toxicological effects and do not represent a new type of waste category. Current waste management practices are applicable. REACH dossiers must include information on substance disposal. Reduce-reuse-recycle remain the catchwords.

Do NM with different product functionalities have different behaviour or outcomes in waste treatment? Today studies say no: NM do not resist physics, and ‘do what they have to do’. Differences in environmental fate are seen according to country practices (recycling points, or application of sludge to agricultural land, etc.).

In terms of nanosafety governance, civil society expectations as reported by **Hilary Sutcliffe** (SocietyInside) look largely sensible: no needless products – labelling for transparency – inform on the personal and sustainability benefits of a nano-enabled product – inform on what are the risks and who is looking after them?

\*\*\*\*\*

The strong presence of Cluster projects interacting with industry and regulatory representatives at the NIA 8<sup>th</sup> Annual Symposium reflected the outreach beliefs of our Dissemination Group Chair **Claire Skentelbery**.

The next chance to meet multiple stakeholders face-to-face will be at **EuroNanoForum (Bucharest, 12-14 June)**, where the Cluster Pavilion will house 13 projects.

Upcoming in **Copenhagen, 7-10 October** will be ‘[NanoSafety Cluster Week: Building Confidence in Risk Assessment and Governance of Nanomaterial Innovation](#)’ (in liaison with caLIBRAte’s closing conference). (Similarly, Frank von Kammer will combine [NanoFASE’s concluding conference with ICEENN 2019 in Vienna, 1-6 September](#)).

And for those who want to stay at home while still benefitting from multi-stakeholder interactions, the Cluster will soon offer project outcomes-oriented **webinars** (hosted on our [YouTube channel](#)).

Visit the NanoSafety Cluster [news/events](#) page and our [LinkedIn group](#) in April for submission or registration information for all these initiatives.



**Image: top: NanoFASE poster;**

**Bottom: Participants at NIA 8th Symposium**

## Science Highlights from the NanoFASE Consortium Meeting - Malta 2019



Reported by Dr Richard Cross (NERC CEH)

In March 2019, H2020 NanoFASE researchers came together in Malta for the 42nd Month Consortium Meeting of our four-year project “Nanomaterial Fate and Speciation in the Environment”. We identified scientific advances and planned our next events - including two interactive days in Vienna open to persons attending ICEENN 2019.

[Read our two-page article on science highlights from the Malta meeting](#)

NanoFASE modelling of fate and transformations in environmental compartments has taken a novel dynamic approach, tracking both nano form and mass over time. In this way we enable risk assessment to go beyond the “steady state” concepts and capacity of many models for traditional chemicals. Particular developments include:

- Improved understanding of the exposure-relevant form of the nanomaterials leaving the waste stream, with emission models for a range of metal and metal oxide nanomaterials at European scale and with forecasts for the next 20 years.
- A spatially resolved, Europe-wide atmospheric model that can provide concentrations and deposition of ENM on an hourly [basis](#).
- Modelling of fate and transformations of engineered nanomaterials in soils with good prediction of field measurements of zero valent iron nanomaterial movements.
- Methodological development of soil column tests that will inform an OECD guidance document.
- Single particle ICP-MS to measure the biological fate of complex core-shell structured nanomaterials upon uptake by organisms.
- Detailed examination of the fate and transformations of nano-pesticides in the rhizosphere, a hitherto poorly understood zone in soils in terms of engineered nanomaterial fate.

At Malta we also set our final targets: consolidating our Exposure Assessment Framework with [clickable online access](#); preparing a NanoSafety Cluster environmental White Paper to inform the EC and ECHA on the knowledge we have developed; and our public [Concluding Conference to be held in conjunction with ICEENN 2019](#) in Vienna next September!

Please enrol to spend two days (5 & 6/09/2019) with NanoFASE scientists digging into our results and their meaning for nano environmental risk assessment.



Image: The NanoFASE Consortium



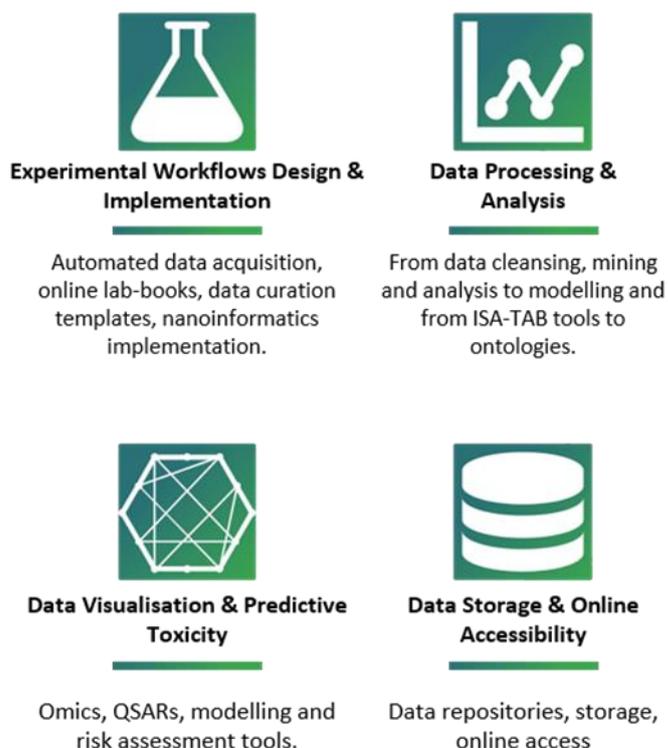
## News from NanoCommons



### NanoCommons: We Develop, You (Now!) Access

[NanoCommons](#) is designing [innovative solutions](#) for data management covering the entire data lifecycle as shown in Figure 1. These solutions begin at the point of experimental design and data generation, through to data mining, data harmonisation utilising ontologies and semantic mapping of datasets and databases, data utilisation and re-utilisation including data visualisation and predictive toxicology.

NanoCommons is also providing data curation, integration and storage services to national and EU-funded projects to incorporate currently disparate datasets into a FAIR and Open Access, federated Knowledge Commons. This will support a wide range of nanoinformatics, modelling and decision support tools that require organised high-quality datasets on which to run, including predictive models developed by NanoCommons partners which can be accessed via the Transnational Access programme.



**Figure 1:** NanoCommons tools and services – available now for funded access

... cont'd/

...cont'd/ News from NanoCommons

NanoCommons [Transnational Access](#) (TA) provides funded access to [state-of-the-art nanoinformatics and data management tools and services](#), and the expertise to implement them successfully.

Researchers from academia and industry are invited to access the NanoCommons services, facilities and knowledge to advance their work, solve problems and take their research to the next level. Figure 2 summarises the steps in the application process.

Access to the platform and the supporting tools is via [a rolling call](#) open from now until 31<sup>st</sup> May 2019. All applications are reviewed and ranked for suitability for funding (fit to NanoCommons research area, evidence of need, quality of the research that will be enabled etc.) – **full evaluation criteria are included in the [User Handbook on the NanoCommons website](#)**.

NanoCommons Covers the TA project costs as follows:

- Research effort (from the TA expert);
- International travel for the User to visit the TA expert to discuss the research plan or results (1 short visit, if needed – online discussion will be encouraged);
- Local accommodation while at the TA partner site;
- A per diem to contribute towards living costs.



**Proposal submission:**  
[www.nanocommons.eu/ta-access](http://www.nanocommons.eu/ta-access)

Figure 2: The NanoCommons TA submission process

**Apply now** to benefit from the NanoCommons tools and services! And don't forget to take our [survey](#) and have your say on the tools and services needed by the nano-community.



## PRESS RELEASE

Venice, April 12, 2019

# Leveraging Interprofessional Education to the Study of Nanosafety and Nanomedicine: Insights from the Horizon 2020 BIORIMA, GRACIOUS and NanoInformaTIX Projects Joint Training School

Creating a meaningful dialogue about risk assessment and management of nano-(bio)materials through cross-cutting insights from nanosafety and nanomedicine fields was the mission a training school delivered by three EU-funded Horizon 2020 projects BIORIMA, GRACIOUS and NanoInformaTIX. 47 young researchers were brought together from across the globe (spanning Europe, North and Latin America) to learn from 26 nanotechnology experts at the historic centre of Venice, Italy, over the week of 25 to 29 March 2019, for intensive yet exciting training.

Inspired by the need to promote and foster a dialogue between the nanosafety and nanomedicine communities, the Programme Committee of the school came up with the novel idea to design a training school which combines Interprofessional Education (IPE) and Case-based Learning (CBL). While IPE promotes engagement and learning from students/professionals with different backgrounds, CBL aims to link theory to practice by the application of knowledge to real-world problems. Combining the two approaches allows that students use their background knowledge in an active way while developing new knowledge through interactions around the problems assigned to them in group work.



Turning this idea into practice, prominent key-note speakers featuring representatives from industry, academia, the Organisation for Economic Co-operation and Development and the European Commission were invited to join forces with world renowned nano-environmental, health and safety, and biomedicine professionals to deliver the 1st interprofessional education nano-focused training school “Cutting Edge Approaches for the Risk Assessment and Management of Nano-(bio)materials: From the Lab to the Market”. Early stage researchers with different backgrounds (e.g. environmental science, chemistry, biology, physics, mathematics) were grouped together in highly interactive sessions to discuss and find solutions to problems posed on a number of diverse topics such as hazard to human health & environment, fate & exposure assessment, risk assessment & risk management, and nanomedicine. Further, the training was complemented with hands-on sessions on modelling, grouping and read-across approaches relevant for nano-(bio)materials risk assessment.

The school proved to be a successful synergistic effort among the three EU-funded projects BIORIMA, GRACIOUS and NanoInformaTIX, and made an important contribution to the training of a new generation of creative and innovative researchers from the cross-cutting disciplines of nanosafety and nanomedicine. CBL is a more efficient way to acquire new knowledge. /cont'd...

... cont'd/ Insights from the Horizon 2020 BIORIMA, GRACIOUS and NanoInformaTIX Projects Joint Training School

One of the delegates commented: “It was a great opportunity to network with students and researchers in the field, as well as a very constructive learning experience with interdisciplinary case studies.”

Another participant added: “Group work, where people have different backgrounds, is very efficient. Case studies are great, they make you feel the subject”.



The three projects will continue to work together and are discussing new collaboration options with other EU-funded initiatives, with the aim to re-shape and deliver a future multidisciplinary nanosafety training agenda.

### Project Facts:

**GRACIOUS** is developing a highly innovative science-based framework to enable practical application of Grouping, leading to Read Across and classification of nanomaterials and nanoforms.

**Project Duration:** 42 months, starting in January 2018

**Consortium:** The GRACIOUS consortium consists of 23 partners spanning Europe and the USA, including representatives from academia, industry, policy makers and regulators.

**Total Budget:** 7.1 Million EUR

**BIORIMA** aims to develop an Integrated Risk Management (IRM) framework for nano-(bio)materials used in advanced therapy medicinal products and medical devices.

**Project Duration:** 48 months, starting in November 2017

**Consortium:** BIORIMA brings together Europe’s foremost experts in the fields of human and environmental safety assessment, nano-(bio)material analytical analysis and physico-chemical characterisation, in-silico modelling, exposure, and risk assessment. The BIORIMA consortium consists of 41 partners, spanning 14 countries in the EU. Additionally, there is strong global collaboration with partners also located in China and Japan.

**Total Budget:** 7.6 Million EUR

**NanoInformaTIX** aims to develop, validate and implement a sustainable informatics framework, based on modelling of the entire life cycle, for the risk assessment of engineered nanomaterials for informing safer design of quality products.

**Project Duration:** 50 months, starting in January 2019

**Consortium:** NanoInformaTIX gathers 36 partners from 18 European and 4 international countries (Taiwan, China, South Africa, Israel), counting on renowned experts in the fields of nanomaterials safety, modelling, computational chemistry, toxicology and eco-toxicology.

**Total Budget:** 7.7 Million EUR

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GRACIOUS

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# NanoExplore Updates

By Kaying Tam,  
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Yordas Group  
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## Take part in the NanoExplore Survey

**Do you have a spare 10 minutes?** Take our short survey to help us identify most commonly used engineered nanomaterials (ENMs), exposure routes and release factors as well as conditions facilitating or hindering companies' participation in research on nanomaterials.

Your views are essential and important; it will help shape the future of research in nanomaterials safe use. This survey is conducted under the NanoExplore project, which is mandated and funded by the European Union. It aims to evaluate health effects derived from exposure to engineered nanomaterials (ENMs) and promote relevant recommendations for their safe use.

Take part in the survey <https://kwiksurveys.com/s/CEKCveoX>

## Latest Developments

The NanoExplore Project is finishing its first steps of preparatory actions and has successfully identified target samples, processes and strategies to ensure a safe approach of the project. Strategies, requirements and current data have been critically evaluated.

The project is now approaching the second stage of the project of implementing actions where design and development will take place.

### A. Preparatory Actions

- A1. Identification and definition of target nanomaterials, process and exposed cohorts** ✓
- A2. Evaluation of exposure measurement strategies and data quality requirements** ✓
- A3. Critical evaluation of current data on biological effects and existing biomarkers of nanomaterial exposure** ✓
- A4. Conceptual design of the NanoExplore approach and implementation plan**

## About Life NanoExplore

**There is an urgent need to provide stakeholders, including regulatory bodies and companies, with an integrated approach to generate robust data on the levels of exposure and related health effects, supporting the risk assessment.**

The Life NanoExplore project is working to develop and demonstrate the feasibility of an integrated approach to conduct biomonitoring studies, characterise exposure levels and elucidate possible health effects deriving from exposure to engineered nanomaterials (ENM) in indoor workplaces and urban areas.

NanoExplore promotes a harmonized approach to overcome current data gaps and barriers limiting the implementation of the REACH regulation and the use of human bio-monitoring data in the protection of human health and the environment when dealing with particles in the nanometer range (1-100 nm) by combining long series of robust data on the concentration of ENMs measured by a wireless sensor network (WSN) of monitoring devices, appropriate biomarkers, and a tailored designed data management application. This approach addresses current environmental, health, and safety questions about ENMs, providing stakeholders from government, industry, NGOs, or the general public, with reliable data on the concentration and effects of particles in the nanometer range (1-100 nm).

<http://www.lifenanoeu.com>

## OpenRiskNet case studies enter final, testing and demonstration phase

# OpenRiskNet

RISK ASSESSMENT E-INFRASTRUCTURE

By Lucian Farcas: [lucian.farcas@edelweissconnect.com](mailto:lucian.farcas@edelweissconnect.com)

OpenRiskNet's work on case studies is entering the final phase with the focus on demonstrating infrastructure capabilities and on testing different risk assessment scenarios. The case studies provide examples and prototypes for solutions provided to the predictive toxicology and risk assessment community and demonstrate the usage of the developed APIs and the interoperability features to build integrated workflows.

- DataCure - Data curation and creation of pre-reasoned datasets and searching
- ModelRX - Modelling for Prediction or Read Across
- SysGroup - A systems biology approach for grouping compounds
- MetaP- Metabolism Prediction
- AOPLink - Identification and Linking of Data related to AOPWiki
- TGX - Toxicogenomics-based prediction and mechanism identification
- RevK - Reverse dosimetry and PBPK prediction

These cases also demonstrate how OpenRiskNet offers customised approaches for the different stakeholder groups (e.g., researchers, risk assessors and regulators) and provides fit-for-purpose services and solutions to real-world applications (e.g., systems biology approaches for grouping compounds; read-across applications using chemical and biological similarity).

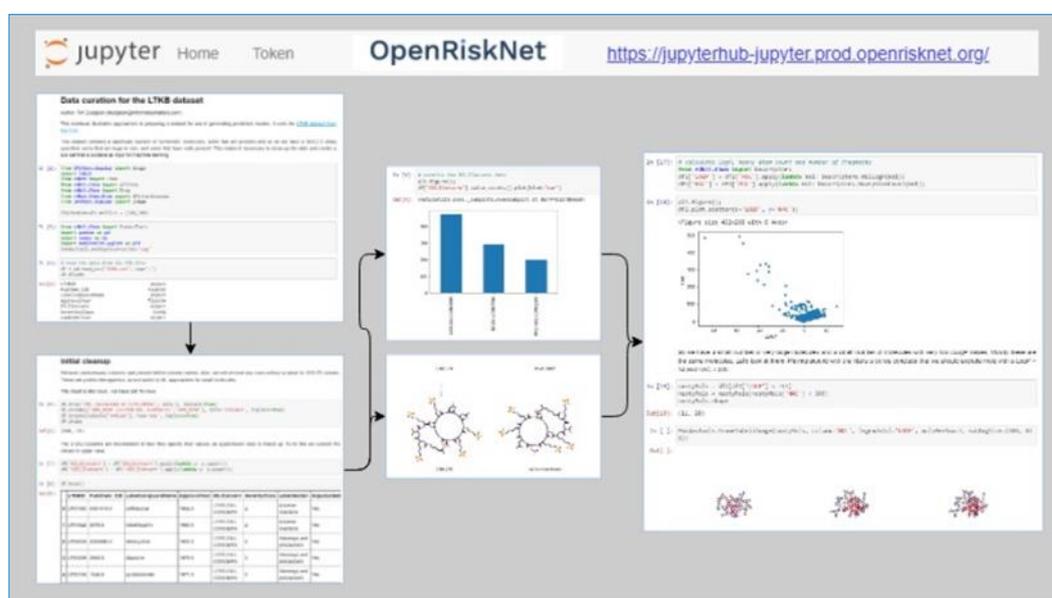
### Data curation workflows

In the process of utilising the analysis tools available in the OpenRiskNet e-infrastructure, data needs to be accessed from different sources and various formats. Thus, the users should be able to access different data sources and specific entries. This are then being curated using an OpenRiskNet service and re-submitted to the data source.

Within DataCure case study (<https://openrisknet.org/e-infrastructure/development/case-studies/case-study-datacure/>), we aimed to establish a process for data curation and annotation that makes use of APIs and semantic annotations for a more systematic and reproducible data curation workflow. The development of semantic annotations and API definition for selected databases are also desired.

Therefore, the aim was to deliver curated and annotated datasets for OpenRiskNet service users as well as preparation of and development of tools that can allow users perform their own data curation.

To achieve these, OpenRiskNet developed resources that can make use of APIs as much as possible and eliminate the need for manual file sharing. In addition workflows that provide examples of useful data for toxicogenomic data analysis will be developed. This case study serves also as the entry point of curation of data sources to be used by the other case studies.



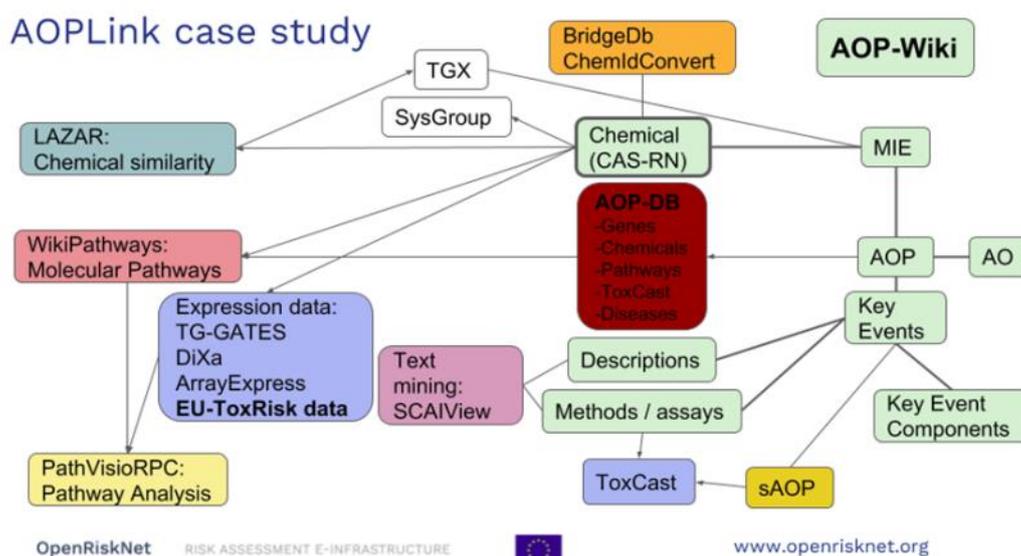
The technical implementation involved several steps related to the availability of data using EdelweissData Explorer as data source, the data extraction done by the use of API calls and text mining workflows, data searching using workflows that employ text mining capabilities, data curation and reasoning done through the provision of workflows stored in Jupyter notebooks, and finally re-submission to data source where the curated datasets may be re-submitted to the EdelweissData Explorer for re-usage. [...cntd/](#)

## Identification and linking of data related to AOPWiki to support the Adverse Outcome Pathway approach

The Adverse Outcome Pathway (AOP) concept has been introduced to support risk assessment [<http://dx.doi.org/10.1002/etc.34>]. An AOP comprises a number of biological events: a molecular initiating event (MIE) is followed by one or more key events (KEs), leading to the adverse outcome (AO). The AOPWiki [<https://aopwiki.org/>] is a collaborative platform to exchange AOP-related knowledge.

The use of AOPs for regulatory purposes requires detailed validation and linking to existing knowledge [<http://dx.doi.org/10.1016/j.reprotox.2015.04.003>; <https://doi.org/10.1089/aivt.2017.0011>]. Part of the development of AOPs is the search for data that supports the occurrence and biological plausibility of KEs and their relationships (KERs). This data can be found in literature and increasingly in databases.

AOPLink case study (<https://openrisknet.org/e-infrastructure/development/case-studies/case-study-aoplink/>) developed within OpenRiskNet framework, focuses on establishing links between AOPs and data that supports a particular AOP. This will allow finding AOPs related to experimental data, and finding data related to a particular AOP.



The case study involves the creation of links between AOPs and experimental data, chemical databases, and the molecular pathway database WikiPathways. In order to do that, a FAIR version of AOP-Wiki (the main AOP resource) and WikiPathways [<https://www.wikipathways.org/index.php/WikiPathways>] are created, and by utilizing RDF, they are implemented in workflows. These workflows can be used, for example, to look up data for an AOP to support the biological plausibility, find AOPs related to experimental results, or identify the molecular pathways underlying the AOPs. With respect to the other OpenRiskNet case studies, AOPLink can take input from SysGroup about similar chemicals (same group) in case no direct search results are found. Furthermore, TGX may provide predicted data to complement experimental data, to support searching and predict the MIE. Because AOPLink may result in hypotheses and list KERs, these results can be passed to ModelRX for further prediction and read across.

### Webinars and case studies demonstration

Users are invited to become familiar with the OpenRiskNet concept before using its services. Live demonstrations are periodically organised through public webinars to allow users to interact with OpenRiskNet service-providers. Also, the webinars recordings and additional training resources related to the e-infrastructure deployment, use and case studies demonstration are publicly available on our website.

### Useful links

- OpenRiskNet services: <https://openrisknet.org/e-infrastructure/services/>
- Case studies description: <https://openrisknet.org/e-infrastructure/development/case-studies/>
- Webinar recordings and training resources: <https://openrisknet.org/library/>
- Calendar of events: <https://openrisknet.org/events/>
- E-infrastructure reference site: <https://home.prod.openrisknet.org/>

## Introducing NanoInformaTIX

### Development and Implementation of a Sustainable Modelling Platform for NanoInformatics

[www.nanoinformatix.eu](http://www.nanoinformatix.eu)

Lisa Bregoli | Warrant Hub SpA

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The application of nanotechnology offers considerable advantages to consumer products and industrial processes in several sectors from medicine to construction, textile, transportation, information technology, energy, food safety and many more. Yet, predicting the risk posed by a product containing engineered nanomaterials (ENM) is still challenging, despite the considerable amount of data from experimental studies on their (eco-)toxicity.

NanoInformaTIX is the newly started EU-funded project focused on the creation of a web-based platform as a comprehensive, multiscale modelling framework for risk management of ENM in industrial manufacturing. The new tool will be based on the significant amounts of data on physico-chemical and toxicological and ecotoxicological properties of ENM generated over the last decades, as well as new data coming from research.

The final aim is to provide **efficient user-friendly interfaces** to enhance accessibility and usability of the nanoinformatics models to industry, regulators, and civil society, thus supporting sustainable manufacturing of ENM-based products .

The main objectives of the project are:

- **Database**—implemented by collecting and managing data from completed and ongoing projects;
- **Material Modelling**—to provide multiscale bottom-up methods for ENM design and model advanced descriptors, implement a ‘Safe-by-Design’ approach;
- **Fate-Exposure Modelling**—to develop models of ENM release and exposure, fate and environmental distribution, and bio-distribution;
- **Dose-Response Modelling**—top-down data mining and quantitative methods, to derive models of the ENM dose-response relationship for (eco-)toxicity, will allow ENM descriptors to be linked to adverse outcomes;
- **Integration/linking of Models**—chain data sources and models will enable specific operations needed for risk assessment as well as predictions of properties and e-effects for safer design of quality products;
- **Model validation**—to improve model prediction using advanced descriptors; validate models by comparing model predictions with data from EU and national projects.

NanoInformaTIX gathers 36 partners from 18 European Countries and 4 International Countries, counting on some of the most renowned experts in the fields of nanomaterials safety, modelling, computational chemistry, toxicology and eco-toxicology. In addition, the project will be linked to the most important initiatives and projects in the field of nano-safety and modelling, to capitalize on the critical mass of experimental data and results being produced at the European and global level.

On February 21st and 22nd 2019 the whole consortium gathered in Madrid to kick start activities, hosted by the coordinator Prof. Miguel A. Bañares (Consejo Superior de Investigaciones Científicas - CSIC, Spain) and in the presence Project Officer of the European Commission, Carlos Eduardo Lima da Cunha.

**For more information: visit the website at [www.nanoinformatix.eu](http://www.nanoinformatix.eu).**

## Gov4Nano Kicks Off

### “Implementation of Risk Governance: meeting the needs of nanotechnology”



From 4th to 6th March 2019, a new H2020 project Gov4Nano officially kicked-off in The Hague, Netherlands. The project coordinators from the National Institute for Public Health and the Environment of the Netherlands (RIVM) organised an interactive kick-off meeting, including open space discussions on all work packages, to exchange ideas and give the project a flying start.

The Gov4Nano project will develop the first implementation of a future-proof operational Nano Risk Governance Model (NRGM) that addresses the needs of the transdisciplinary field and innovative (and key enabling) character of nanotechnology.

- It will explore the potential added value of upcoming tools and approaches such as Findable, Accessible Interoperable and Re-usable (FAIR) databases, data-hackathons, blockchain technology and implementation of Safe-by-Design to achieve adaptive and resilient risk governance.
- It will support consensus building, prioritization and harmonization of practices amongst stakeholders, with a focus on key aspects for risk governance of nanotechnologies, including risk assessment, risk management, risk perception and risk communication, risk-benefit evaluation, and risk-transfer and the societal desirability of nanotechnology applications.
- It will include knowledge management and data management, efficiently executed through stakeholder involvement.

### Objectives

The overarching aim is to develop a proof of concept of an efficient and effective risk governance process for nano-technologies, dealing with the legacy as well as future technological developments.

Objective 1: To improve the FAIRness of the nano-EHS data infrastructure, eventually leading to machine-readable data
Objective 2: Harmonized guidance for characterization and testing of nanomaterials
Objective 3: To understand how risk perception on nanotechnologies is formed in (a) civil society and (b) (re-) insurance industry
Objective 4: To develop a NanoSafety Governance Portal with tools, data, and guidance
Objective 5: To build a Risk Governance Council for nano (NRGC) to coordinate and harmonize transdisciplinary international efforts toward safe and sustainable nano-related products
Objective 6: From stakeholder engagement to stakeholder involvement in the NRGC
Objective 7: To equip the NRGC with the mechanisms and tools to monitor the progress on implementation of risk governance for nanotechnology across different regulatory sectors (i.e. chemicals, biocides, cosmetics, food, medicine) in Europe and beyond

Gov4Nano will work towards a resilient and adaptive form of risk governance covering the needs of a continually developing technology and addressing the needs of all involved stakeholders across all relevant disciplines, including civil society.

Gov4Nano will take into account the particulars of different generations of nano-technologies and risk/benefits/public concerns to develop an integrated approach connecting the scientific, regulatory and market layers and the different actors involved from generation of data and knowledge to application in legislation and standards, and propose the basis for efficient and effective risk governance of nanotechnologies.

Visit the project website: <https://www.gov4nano.eu/>

The Gov4Nano project will design and establish a Nanotechnology Risk Governance Council (NRGC), to create a trustworthy and objective international umbrella for the risk governance of nanotechnologies.



## Spotlight on Release\_NanoTox

### **In vivo evaluation of the potential neurotoxicity of aerosols released from mechanical stress of nano-TiO<sub>2</sub> added paints**

Coordinator: charles.motzkus@cstb.fr

This project, called Release\_NanoTox, for “Impact on the nervous system of particles released from nanocomposite materials under stress use” is coordinated by Scientific and Technical Center for Building (CSTB) in collaboration with French Agency for Food, Environmental and Occupational Health & Safety (ANSES), French National Laboratory for Metrology and Testing (LNE) and CarMen Laboratory.

The aim of this project is in vivo evaluation of the potential neurotoxicity of aerosols released from mechanical stress of nano-added paints with TiO<sub>2</sub> nanoparticles in mice chronically exposed by inhalation.

Release\_NanoTox has been awarded a grant by ANSES in 2015 for 4 years, and will end in 2019.

### Summary

Engineered Nanomaterials provide technical and specific benefits due to their physical-chemical properties at the nanometer scale and are used to improve products in the building industry such as nanoscaled titanium dioxide (TiO<sub>2</sub>). TiO<sub>2</sub> nano-added materials are used in this context to provide anti-UV, air purification and self-cleaning properties thanks to their photocatalytic activity. However, ageing processes during a mechanical stress have been shown to release TiO<sub>2</sub> nanoparticles from the matrix associated with sanding dust. Workers who sand painted walls could be exposed to TiO<sub>2</sub> nanoparticles through inhalation which may lead to a translocation of particulate matter to the brain via olfactory or trigeminal nerves. There is therefore an urgent need for evaluating a potential neurotoxicity. In order to provide new knowledge on this topic, we developed a dedicated in vivo experimental set-up. The aerosol released from a mechanical stress of photocatalytic paints containing TiO<sub>2</sub> nanoparticles was characterized and coupled to an exposition chamber containing group of mice, free to move and chronically exposed (2 hours per day for 5 days a week during 8 weeks).

### Background

Engineered Nanomaterials such as titanium dioxide (TiO<sub>2</sub>), carbon nanotubes, silica dioxide (SiO<sub>2</sub>) or silver (Ag), are increasingly used in the construction products, e.g. cement, wet mortar and concrete, coatings and paints [1-3]. It is assumed that the majority of nanomaterials are most likely safe, at least at concentrations for which workers are exposed. However, many questions are still open concerning the impact of these nanomaterials on workers' health when handling these products. As an example, the degradations induced by the abrasion mechanisms of nanocomposite materials could induce the release of nanoparticles into the environment for which chemical nature, size and concentrations are mostly unknown [4-6]. In this context, the most common route of exposure to nanoparticles in the aerosol phase generated by activities in the construction industry phase is inhalation [7]. Nanoscaled TiO<sub>2</sub> is one of the most used engineered nanomaterials in this industry for photocatalytic paints [8]. Incorporated in the paints matrix, TiO<sub>2</sub> nanoparticles provide the final product with anti-UV, air purification and self-cleaning effects properties thanks to their photocatalytic activity [9]. However, ageing processes during a mechanical stress have been shown to release TiO<sub>2</sub> nanoparticles from the matrix associated with sanding dust [5, 10]. Thus, workers who sand painted walls could be exposed to TiO<sub>2</sub> nanoparticles in combination to paint matrix through inhalation. Although some experimental studies underlined the potential hazardous effects of inhaled nanoparticles like lung inflammation or the affection of the cardiovascular system, to the best of our knowledge, none investigated a potential impact on the central nervous system [11-13]. However, since there is a possibility for inhaled nanoparticles to reach the brain through the nose either directly via the nerve endings of olfactory neurons or through trigeminal nerves, there is a crucial need to study their potential neurotoxicity, especially in case of chronic exposure [14, 15, 16].

### Scientific and technological challenges

The scientific challenge of this project is to determine if chronic exposure to sanding dusts containing TiO<sub>2</sub> nanoparticles through inhalation could impact brain functions (Figure 1). One of the key challenges of our project is to develop a set-up that allows repeated exposure in rodents by inhalation, several hours per day, several days per week, for several weeks. The repeatability and reproducibility of the aerosol production as well as in the exposure conditions are measured and controlled all along the process. In order to respect animal welfare and to overcome the limitations and disadvantages of conventional devices for inhalation studies ("nose only" or "whole body"), a new device was specially designed for this project. It offers secured and entirely controlled, chronic exposure to the aerosol of group of mice, free to move, without stress.

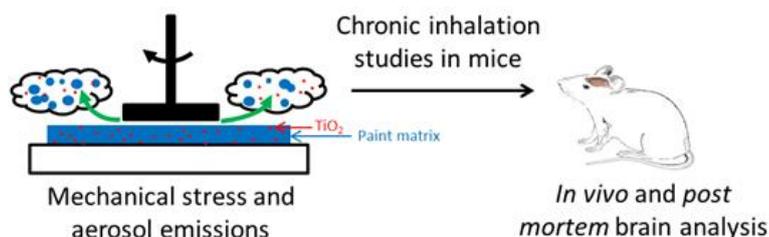


Figure 1. Scientific and technological challenges in the Release\_NanoTox project

One of the novel objectives of the Release\_NanoTox project is to evaluate the impact of exposure to a commercially available paint in comparison to different control conditions: exposure to a home-made TiO<sub>2</sub> nano-additived paint, exposure to the same home-made paint without TiO<sub>2</sub> addition, and exposure to TiO<sub>2</sub> only. This will contribute to mimic real exposure by inhalation compared to a study involving pure nanomaterials only.

### Objectives

The aim of the present study is to determine by a realistic approach if repeated exposure to particles released from nanocomposite materials, such as nano-additived paints with TiO<sub>2</sub> nanoparticles, can impact the central nervous system. Thus, the emitted aerosols produced under realistic conditions were first characterized and then used for in vivo studies to evaluate their potential neurotoxicity in mice after chronic inhalation exposure. The neurofunctional impact was assessed by recurrent rotarod test performances and longitudinal multiparametric Magnetic Resonance Imaging of the mouse brain. Potential neuroinflammation and neuronal loss will also be evaluated post mortem with histological and immunohistochemical analyses. Altogether these complementary goals should bring solid new knowledge about potential neurotoxicity of these materials.

### Progress and Outcomes to date

The work plan composed of several tasks and sub-tasks is presented in Figure 2.

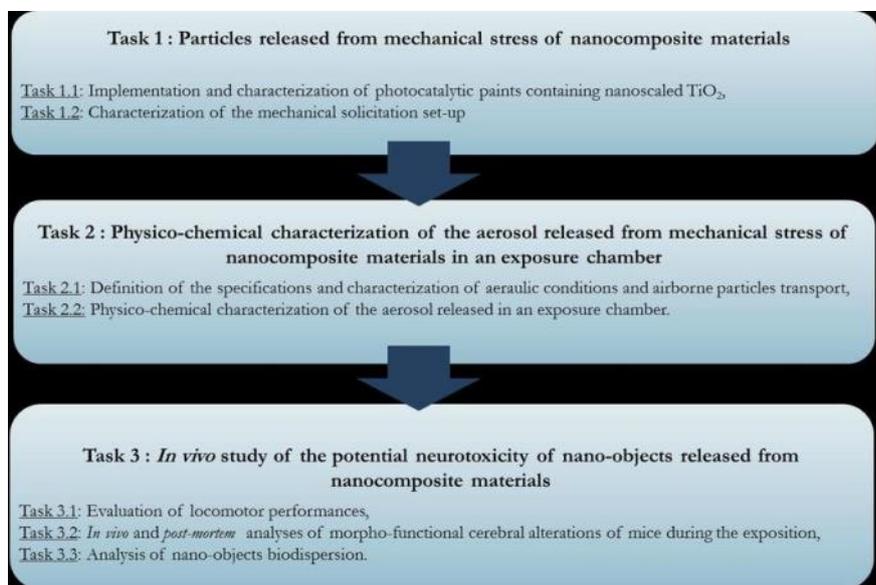


Figure 2 Workplan of the Release NanoTox project

A first scientific paper was already published [17] (see below) in order to present the Release\_Nanotox project. From the workplan presented in Figure 2, Tasks 1 and 2 are being finalized for the end of 2018 knowing that the experimental phase of the Task 3 is already finished. The global data analysis and associated interpretations/discussions are therefore in progress and results will be published in 2019.

### Expected Impact

The main novel aspect of the Release\_NanoTox project consists in the convergence work on particle emissions from the mechanical stress of nano-additived paints and the study of the in vivo neurotoxicity associated to the chronic inhalation. Indeed, to date and to the best of our knowledge, toxicity studies are focused on the impact of nano-objects only. As it has been shown that the wear of a nano-additived material leads to the production of polymorphic particles in size and composition, with a majority of particles consisting of nanoparticles encapsulated in the matrix material, it is necessary to assess their potential toxicity compared to the nano-objects alone. Moreover, the chemical composition of the nano-additived material's matrix is a factor that is not taken into consideration in toxicology studies. Similarly, no study has focused on the neurotoxic effect of particles from nanocomposite materials. Our study will bring new knowledge and should contribute to clarify these important questions for the health of workers.

### Consortium representatives

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Publication available to download here: <https://tinyurl.com/y4hdvvp3>

In vivo evaluation of the potential neurotoxicity of aerosols released from mechanical stress of nano-TiO<sub>2</sub> additived paints in mice chronically exposed by inhalation

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## Nano in Action Webinar Series Addresses Nano Safety—May 7th 2019

NIA's **Nano in Action** series moves on to the topic of Nanosafety and takes a look at the latest research and support tools that will advance the development of safe materials. Hear from speakers involved in human and environmental safety research and services and understand how regulations and standards are evolving to build commercial and consumer confidence in nanomaterials.

### Speakers:

University of Birmingham (UK)



Finnish Institute of Occupational Health (FI)



VITO (BE)



University College Dublin (IE)



**Register:** The webinar is open and free of charge.

**All participants can register here:** <http://nanotechia.org/events/nano-action-nanosafety>

## BioNanoNet NEWSLETTER—Out Now!

Simone Jagersbacher

BioNanoNet

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The BioNanoNet Newsletter 01/2019 is available for download now!

[https://www.bionanonet.at/images/BioNanoNet\\_News\\_2019\\_01.pdf](https://www.bionanonet.at/images/BioNanoNet_News_2019_01.pdf)

In addition to contributions from our BioNanoNet members, reports about projects and activities, and an overview of interesting events, we feature the BioNanoNet member presentation of NORGANOID (Austria). There is also a report on the Gov4Nano kick off meeting (included in this newsletter) as well as an excellent article by **Albert Duschl**, University of Salzburg, **'What do nanosafety experts think?'**, in which he states:

The US-EU NanoEHS Communities of Research (CoR) are a platform for European and US colleagues to collaboratively identify and address key research needs through community-led activities (<https://us-eu.org/>). In discussions during the regular meetings, participants have identified a need to get a more objective overview of the field of nanosafety research. Of course, the bulk of information is available in the literature, on project websites, in database or on communication platforms like the NanoSafety Cluster. However, neither opinions nor expectations about the future are included there, and both may be of interest.

The CoR Human Toxicity has performed between September 2017 and January 2018 a survey among nanosafety experts about the state of investigation in their field. There were 84 respondents and more would have been better, but considering the survey fatigue, that everybody feels, it is quite OK. The results have now been published in *J Nanopart Res* (2018) 20: 335. <https://doi.org/10.1007/s11051-018-4434-9>. The full set of data is included as supplementary data to this publication. The plan is to repeat this survey every few years, to get a feeling for the development of the field.

Read the rest in the [BioNanoNet Newsletter](#) p.39- We hope that you enjoy reading the newsletter!

BioNanoNet-Team



## Researcher of DBio and CESAM, University of Aveiro Mónica Amorim distinguished in the book “Women in Science”

**Mónica Amorim** (UAVR) of the **NANORIGO** project has been selected for a Portuguese book on “Women in Science” where they describe outstanding female scientist. The book highlights female scientist that can act a lighthouses for others - see <http://www.cienciaviva.pt/mulheresnaciencia/index.asp?id=852>

Mónica Amorim, researcher of the Department of Biology and the Centre for Environmental and Marine Studies (CESAM), from the research group of Ecology and applied Ecotoxicology - appLEE, coordinated by Prof. Amadeu Soares, received recognition by *Ciência Viva* (National Agency) in the book “Women in science”, the new edition is released on the 8<sup>th</sup> of March, the international women’s day, at the *Knowledge Pavilion*, in Lisboa.

“I am fascinated by nature. Its forms and colours intrigue and encourage me to comprehend more and more about this fundament for human life. The study of the human impact in the environment through the genes is a journey in which I discover one of the key elements of this system, it is like an enlightening trail that enables me to seize the beginning of the story. It is by diving into the deepness of the environment that I try to protect this precious world”, refers Mónica Amorim in her testimony to *Ciência Viva*. <http://www.cienciaviva.pt/mulheresnaciencia/index.asp?id=852>

“The *Ciência Viva* pays tribute to the Portuguese female scientist, which represent 45 per cent of the total number of researchers in our country and whose notable work has been fundamental for the progress that took place in science and technology at the national level in the last decades” explains Rosalia Vargas, president of *Ciência Viva*. <http://www.cienciaviva.pt/mulheresnaciencia/index.asp>

“This special acknowledgement to the scientists which culminated on the release of the book “Women in Science” does not exhaust the participation of Portuguese women who makes science, but rather intends to be an exhibition of their involvement in the adventure of knowledge.

We invited emeritus scientists, senior and young career starter scientists and tried to cover as many as possible areas dealing with knowledge and geographies”, highlights Rosalia Vargas.

From Biology to Mathematics, Chemistry to Social Sciences, Physics to Archaeology, Neurosciences to Geography, Engineering to History, Space Science to Philosophy, *Women in Science* provides, for now, the focus on 137 researchers. These are 137 success stories that have largely contributed to the enrooting of science in the Portuguese society and that, the *Ciência Viva* hopes may inspire the young ones to follow their calling.

<http://uaonline.ua.pt/pub/detail.asp?c=57487>



## JRC Publishes Science for Policy Report

The JRC have released a report clarifying the key concepts and terms used in the European Commission's nanomaterial definition. This will support stakeholders for the correct implementation of legislation making reference to the definition.



[The European Commission's Recommendation on the definition of nanomaterials \(2011/696/EU\)](#) provides a general basis for regulatory instruments in many areas. This definition has been used in the EU regulations on biocidal products and medical devices, and the REACH regulation. It is also used in various national legislative texts. However, in the context of a JRC survey, many respondents expressed difficulties with the implementation of the EC definition, in particular due to the fact that some of the key concepts and terms could be interpreted in different ways.

Therefore, the JRC just published the report "[An overview of concepts and terms used in the European Commission's definition of nanomaterial](#)," which aims to provide a clarification of the key concepts and terms of the nanomaterial definition and discusses them in a regulatory context.

This will facilitate a common understanding and fosters a harmonised and coherent implementation of the nanomaterial definition in different regulatory context at EU and national level.

### Abstract:

This report supports the implementation of the European Commission's Recommendation on a definition of nanomaterial (2011/696/EU). It addresses its key concepts and terms and discusses them in a regulatory context. Corresponding to the broad scope of the definition the considerations in this report can be applied across all relevant legislative areas; they are not specific to any particular piece of legislation. The report provides recommendations for a harmonised and coherent implementation of the nanomaterial definition in any specific regulatory context at European Union and national level.

<https://ec.europa.eu/jrc/en/news/getting-specific-about-nanomaterials>



### Definition of a nanomaterial

The EU adopted a definition of a nanomaterial in 2011 ([Recommendation on the definition of a nanomaterial](#)(2011/696/EU)). Its provisions include a requirement for review "*in the light of experience and of scientific and technological developments. The review should particularly focus on whether the number size distribution threshold of 50 % should be increased or decreased*". Prior to the conclusion of the review a public consultation on the considered modifications will be held. The precise date of its launch is under consideration within the end-of-term planning of the Commission.

According to the [Recommendation](#) a "Nanomaterial" means:

*A natural, incidental or manufactured material containing particles, in an unbound state or as an aggregate or as an agglomerate and where, for 50 % or more of the particles in the number size distribution, one or more external dimensions is in the size range 1 nm - 100 nm.*

*In specific cases and where warranted by concerns for the environment, health, safety or competitiveness the number size distribution threshold of 50 % may be replaced by a threshold between 1 and 50 %.*

*By derogation from the above, fullerenes, graphene flakes and single wall carbon nanotubes with one or more external dimensions below 1 nm should be considered as nanomaterials.*

The definition will be used primarily to identify materials for which special provisions might apply (e.g. for risk assessment or ingredient labelling). Those special provisions are not part of the definition but of specific legislation in which the definition will be used.

**CIFRE THESIS - 36 months:**

**Uncertainty quantification associated with image segmentation and completion using deep learning algorithms: application to SEM image measurement of nanoparticles**



Location: 60% LNE Trappes 78 - 40% academic partner | Reference: ML/IANANO/DMS

Measuring the size of a population of nanoobjects remains a major metrological challenge for the industrial development of nanomaterials. Microscopy is still the reference technique for determining the size, size distribution and shape of nanoobjects. This is a so-called "direct" technique, because it is based on observation and the measurement result is directly traceable to the SI unit of length, the metre.

To make significant progress in the field of nanoobjects measurement by Electron Microscopy, it is necessary to abandon the idea of developing a universal algorithm that would be able to analyse nanoobjects images with the same reliability regardless of the shape, size, polydispersity or chemical nature of the nanoobjects. In this research project, we propose to use Artificial Intelligence (AI) to teach a neural network to recognize the morphological properties of a population of TiO<sub>2</sub> nanoparticles, which is frequently used in the food industry as a white dye.

Once the shape recognition training is complete for this population of nanoparticles, the objective will be to:

- Improve particle segmentation, i.e. make contour determination more reliable.
- Reconstruct certain nanoparticles, some of which are hidden because of the agglomeration phenomenon, before deducting their size. This would increase the number of nanoparticles to be measured on an image, significantly reduce the number of images to be produced, thus reducing the cost and increasing the speed of measurements in the real-time metrological processes implemented on many industrial nanomaterial production lines.
- Evaluate the possibility of building databases of nanoparticles representative of the industrial world in order to implement more robust algorithms.

**Profile of prospective applicants:**

- You have a degree in Applied Mathematics.
- Skills in statistics, deep-learning and image processing are essential.
- You have knowledge of Python programming and are familiar with deep learning Python frameworks such as Tensorflow or Keras.
- Participation in scientific events or in the writing of scientific articles will be particularly appreciated.

**To apply:** please send your CV and LM to [recrut@lne.fr](mailto:recrut@lne.fr) with the reference ML/IANANO/DMSI in the subject line of the email.

Georges Favre: [georges.favre@lne.fr](mailto:georges.favre@lne.fr)

**JRC—Job Opportunity:**

JRC currently has an exciting new vacancy:

JN 313983 - CA FG IV has been published in ESRA:

<http://recruitment.jrc.ec.europa.eu/?site=IPR&type=AX>

<https://ec.europa.eu/jrc/en/working-with-us/jobs/vacancies>

Code: **2019-IPR-A5-FGIV-011516**

Title: **FGIV - Scientist - Exploratory Research Project - Nanomedicine for Combatting Microbial Infections (NANO-MICROBIALS)**

**Deadline: 17/05/2019**



## Post-doctoral associate: Ontologies, Workflows, Nano-informatics, Database

**Starting date :** September 2019

**Employer and Location :** Aix Marseille University, Aix en Provence, France

**Duration :** 12 months

**Aix Marseille University has an open position for a post-doc researcher to join the “sustainable environment” research group at the CEREGE, Aix en Provence.**



The position is funded by the European Commission as part of the H2020 project NanoInformaTIX. NanoInformaTIX is a €6million project that aims to create a comprehensive, sustainable, multi-scale modelling framework for exposure and (eco)-toxicity of Engineered Nanomaterials (ENM) to facilitate cost-effective risk assessment, less reliant on animal testing, and to support the design of safer materials and products.

We are looking for a postdoc to work on ontology, workflows and database management. Specifically, the candidate will have to developed workflows for ontological development and maintenance in collaboration with existing ontology development communities. This project is in the context of the implementation of a comprehensive database that will integrate nanosafety data from various international datasets. Workflows to integrate the ontology into data curation, data validation and input/output of modelling tools will be defined. This project will allow leveraging ontologies and file sharing within the NanoEHS community and the FAIR principles should be considered in the current network of environmental databases.

This position offers the opportunity for international collaboration and global visibility within the nanoinformatics field.

### Required Skills and Experience for the post-doc position:

- The ideal candidate should have a PhD in Data Science, Bioinformatics, Computer Science or a related field. Candidates with a sound and proven data science background and excellent quantitative skills are encouraged to apply.
- Knowledge of biological ontologies, controlled vocabularies, semantic web technologies (OWL, RDFS, RDF) and expertise in Protégé, as well as experience in programming languages (e.g., Python, R, Java) and database design and handling would be highly valued.
- Demonstrate an understanding of both science and informatics.
- Good presentation skills, aptitude for international collaborations.

### Please send CV, statement of research interests and the names and addresses of three references to:

- Jérôme Rose, [rose@cerege.fr](mailto:rose@cerege.fr)
- Mélanie Auffan, [auffan@cerege.fr](mailto:auffan@cerege.fr) or
- Camille de Garidel, [cgaridel@cerege.fr](mailto:cgaridel@cerege.fr)

### Weblinks:

<http://www.labex-serenade.fr/news-events/post-doctoral-position-open-ontologies-nano-informatics-and-database-aix-marseille>

[www.nanoinformatix.eu](http://www.nanoinformatix.eu)



## Training Courses

- [H2020 FINANCIAL MANAGEMENT](#)  
[2-3 days training on the administrative & financial management of H2020 projects](#) (English)  
[2-3 days training on the administrative & financial management of H2020 projects](#) (French, Spanish, Italian)
- [NEW PARTICIPANT PORTAL \(SEDIA\)](#)  
[A 2-day training course to learn how to efficiently use & exploit the new Participant Portal \(SEDIA\) tools](#)
- [H2020 PROPOSAL WRITING TRAINING](#)  
[A 2-day training on the proposal writing process of H2020 projects](#)

For more information, visit: <https://efmc.eu/services/training-courses>

## Call for Proposals

### JRC Nanobiotechnology Laboratory



1. The current [CALL](#) to the [JRC Nanobiotechnology Laboratory](#) is open **until 07/06/2019** (CET time).

The proposals should be submitted to [JRC-RI-OPEN-ACCESS@ec.europa.eu](mailto:JRC-RI-OPEN-ACCESS@ec.europa.eu) by the closing date.

For clarifications on scientific and technical feasibility aspects: [JRC-OPEN-NANOBIOTECH@ec.europa.eu](mailto:JRC-OPEN-NANOBIOTECH@ec.europa.eu).

2. JRC has also opened **a call to access its research infrastructures** for [Training and Capacity Building for Enlargement and Integration Countries](#) with the Nanobiotechnology Laboratory as pilot facility.

The [call](#) is open to users from [countries associated to the EU Research Programme Horizon 2020](#). Training is free of charges and travel/subsistence costs are covered by the JRC up to the ceiling set out in the call. The proposals should be submitted to [JRC-RI-TRAINING-CB@ec.europa.eu](mailto:JRC-RI-TRAINING-CB@ec.europa.eu) by the closing date **03/06/2019** (CET time).

For clarifications on scientific and technical feasibility aspects: [JRC-OPEN-NANOBIOTECH@ec.europa.eu](mailto:JRC-OPEN-NANOBIOTECH@ec.europa.eu).

Interested in visiting the Laboratory? Watch our new [video](#) and take a [360° Virtual Tour!](#)



## Exposición Laboral a Nanomateriales: Equipos de Medición Directa e Indirecta

<https://nanoprevencion.unican.es/>

Ciro Salcines, University of Cantabria

[ciroluis.salcines@unican.es](mailto:ciroluis.salcines@unican.es)

Free conference about nanosafety organised by University Carlos III Madrid and University Cantabria. Register here: [servicio.prevencion@uc3m.es](mailto:servicio.prevencion@uc3m.es)

CURSO UNIVERSITARIO DE ESPECIALIZACIÓN EN NANOPREVENCIÓN	
JORNADA TÉCNICA 13 MAYO 2019 “EXPOSICIÓN LABORAL A NANOMATERIALES: EQUIPOS DE MEDICIÓN DIRECTA E INDIRECTA”	
09:15-09:30	<b>BIENVENIDA Y PRESENTACIÓN DE LA JORNADA</b> D. Jesús Rafael Mercader Uguina. Director del Máster Universitario en Prevención de Riesgos Laborales de la Universidad Carlos III de Madrid. D <sup>a</sup> . Sonia Rosa Aranda. Subdirectora de Infraestructuras y Servicios en Campus. Directora de Prevención y Sostenibilidad de la Universidad Carlos III de Madrid.
09:30-10:20	<b>INTRODUCCIÓN A LA MEDICIÓN DE NANOMATERIALES EN EL ÁMBITO LABORAL</b> D. Ciro Luis Salcines Suárez. Coordinador del Curso Online de Especialización en NanoPrevención de la Universidad de Cantabria.
10:20-11:10	<b>CARACTERIZACIÓN DE NANOMATERIALES Y NANOTOXICOLOGÍA.</b> Zetasizer Nano Range, tecnología DLS. NanoSight Range. D. Jesús Carlos Puebla Sánchez. Director Comercial de IESMAT, S.A.
11:10-12:00	<b>CARGADOR POR DIFUSIÓN PORTÁTIL Y DE MANO DISC MINI.</b> D <sup>a</sup> . Silvia López Vidal. Directora I+D de RAMEN-IONER
12:00-12:20	Descanso
12:20-13:10	<b>ELECTRICAL LOW PRESSURE IMPACTOR ELPI<sup>®</sup>+, DLPI+ y DLPI.</b> D. Enrique Setién Martínez. Consejero Senior de SOLMA ENVIRENMENTAL SOLUTIONS
13:10-14:00	<b>ESPECTRÓMETRO GRIMM PARA MEDICIÓN DE PARTÍCULAS., MINIWRAS Y MINILAS. BOMBA DE MUESTREO SKC LELAND LEGACY. IMPACTADOR PARA NANOPARTÍCULAS SKC MOD. SIOUTAS</b> D. Carlos Suárez Rodríguez. Jefe del Dpto. Higiene Industrial y Medio Ambiente de VERTEX Technics, S.L.
Lugar de impartición: <b>CAMPUS DE MADRID PUERTA DE TOLEDO</b> Salón de Grados Ronda de Toledo 1, 28005 Madrid	
 	
<b>INSCRIPCIONES:</b> Asistencia gratuita previa inscripción online hasta el 9 de mayo. Aforo limitado. Enviar un correo electrónico a esta dirección de correo: <a href="mailto:servicio.prevencion@uc3m.es">servicio.prevencion@uc3m.es</a>	
   	
   	

## World Chemistry Forum 2019 (WCF-2019).

### Nano Science and Technology Forum Parallel Forum

May 22-24, 2019 in Barcelona, Spain.



#### Honorary Chairmen giving keynote speeches:

**Dr. Gabor A. Somorjai** (Professor, University of California at Berkeley, USA)

**Dr. Francesc Illas** (Professor, University of Barcelona, Spain)

#### Main topics

1. Nanochemistry
2. Advanced and Smart Nanomaterials
3. Nano-Biomaterials and Nanobiotechnology
4. Application of Nanomaterials and Nanotechnology
5. Nano-Fabrication, Characterization and Nanoengineering
6. Nanoelectronics, NanoOptics, NanoPhotonics and Nanomagnetism
7. Nano Devices
8. Nanomedicine
9. Nanotechnology in Energy & Environment



#### Keynote presenters include,

**Dr. Gabor A. Somorjai**, Professor, University of California at Berkeley, USA (**Honorary Chairman** of WCF-2019)

**Dr. Francesc Illas**, Professor, University of Barcelona, Spain (**Honorary Chairman** of WCF-2019)

**Dr. Hans-Peter Steinrück**, Professor, University of Erlangen-Nuremberg, Germany

**Dr. Ulrich Mueller**, Senior Vice President - Executive Expert Zeolite Catalysis, BASF SE, Germany

**Dr. Francisco Zaera**, Distinguished Professor, University of California, Riverside, USA

**Dr. Christof Woll**, Professor and Director of Institute for Functional Interfaces, Karlsruhe Institute of Technology, Germany

**Dr. Gyula Palyi**, Professor, University of Modena and Reggio Emilia, Italy

**Dr. Oleg L. Figovsky**, Professor and Founder, Polymate Ltd - Israel Research Center, Israel

**Dr. M. Samy El-Shall**, Professor and Chair of Chemistry Department, Virginia Commonwealth University, USA

**Dr. Jean-Marie Maurice Basset**, Professor, King Abdullah University of Science and Technology, Saudi Arabia

**Dr. Mostafa Ronaghi**, CTO and SVP, Illumina, USA

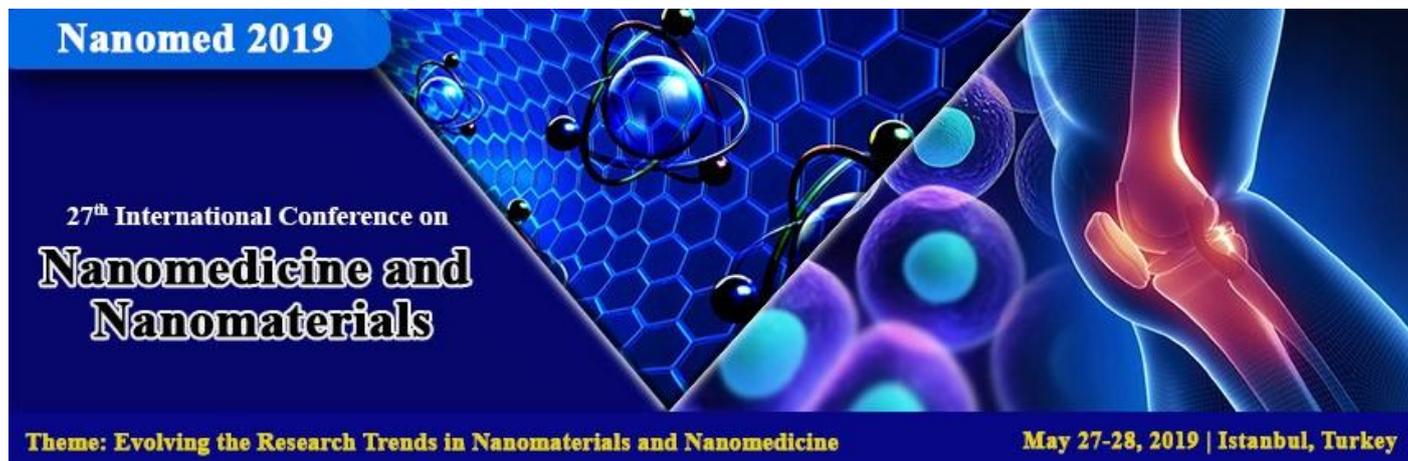
**Dr. Miguel A. Castillo Acero**, VP Technology Development, Aernnova Group, Spain

**Dr. Ulrike Diebold**, Professor, Institute of Applied Physics, TU Wien, Vienna, Austria

#### About ICN2

The Institut Català de Nanociència i Nanotecnologia, with its official English translation Catalan Institute of Nanoscience and Nanotechnology and acronym ICN2, is a non-profit international research institute located close to Barcelona, Spain. Its research lines focus on the newly-discovered physical and chemical properties that arise from the behaviour of matter at the nanoscale.

<https://icn2.cat/en/about-icn2>



## 27<sup>th</sup> International Conference on Nanomedicine and Nanomaterials

Nanomed 2019 aims to bring together leading academic scientist, researchers and research scholars to share their knowledge, experience and research on the parts of nanomedicine and nanomaterials. This event will provide an international platform to scientist, researchers and to the students of nanomaterials to discuss the recent innovations and inventions.

<https://nanomaterials.nanotechconferences.org>

Contact: Barbara Dennis: [nanomed2019conference@gmail.com](mailto:nanomed2019conference@gmail.com)

Abstract submissions: <https://nanomaterials.nanotechconferences.org/abstract-submission.php>

## Nanotech France 2019

Dr Malika Ardhaoui, [info@setcor.org](mailto:info@setcor.org)

Nanotech France 2019, the 5th edition of the international conference and exhibition, brings together leading scientists, researchers, engineers, practitioners, technology developers and policy makers in nanotechnology to exchange information on their latest research progress and innovation.

Participants from the top international academic, government and private industry labs of different disciplines participate in Nanotech France 2019 to identify new technology trends, development tools, product opportunities, R&D collaborations, and commercialization partners. It is an excellent event for students to meet and discuss with lead researchers. The conference provides an unprecedented opportunity to discover innovation in the area of nanotechnology and new business opportunities. It is among the most important events in terms of international regulatory policies and it is open to the participation of private companies.

The conference covers all frontier topics in nanotechnology. The conference includes plenary lectures, Keynote lectures and invited talks by eminent personalities from around the world in addition to contributed papers both oral and poster presentations.

The Nanotech France 2019 conference topics include:

- Advanced Nanomaterials
- Nanomaterials Fabrication, Characterization and Tools
- Nanoscale Electronics
- Nanotech for Energy and Environment
- Nanotech in Life Sciences and Medicine
- Nanotechnology safety
- Nano Applications

<https://www.setcor.org/conferences/Nanotech-France-2019>





## NanoSafety Cluster Pavilion at EuroNanoForum, June 12-14 2019, Romania

[info@euronanoforum2019.eu](mailto:info@euronanoforum2019.eu) | <https://www.euronanoforum2019.eu/>

**Thirteen nanosafety and innovation projects are coming together within a NanoSafety Cluster pavilion at EuroNanoForum 2019.**

Taking place on June 12-14 in Bucharest, Romania, EuroNanoForum is an important conference for NanoSafety Cluster stakeholder networking and the pavilion will be a focal point for nanosafety research and nano-innovation.

### Pavilion projects include:

- ACEnano [www.acenano-project.eu](http://www.acenano-project.eu)
- caLIBRAte [www.nanocalibrate.eu](http://www.nanocalibrate.eu)
- Gracious [www.h2020gracious.eu](http://www.h2020gracious.eu)
- NanoCommons [www.nanocommons.eu](http://www.nanocommons.eu)
- NanoFASE [www.nanofase.eu](http://www.nanofase.eu)
- LORCENIS [www.sintef.no/projectweb/lorcenis](http://www.sintef.no/projectweb/lorcenis)
- ModComp [www.modcomp-project.eu](http://www.modcomp-project.eu)
- NanoInformaTIX [www.nanoinformatix.eu](http://www.nanoinformatix.eu)
- nTRACK [www.n-track.eu](http://www.n-track.eu)
- npscope [www.npscope.eu](http://www.npscope.eu)
- PATROLS [www.patrols-h2020.eu](http://www.patrols-h2020.eu)
- RiskGone [www.riskgone.eu](http://www.riskgone.eu)
- SmartNanoTox [www.smartnanotox.eu](http://www.smartnanotox.eu)

The projects will deliver a schedule of activities at the pavilion, creating a hands-on experience for delegates and valuable stakeholder interaction for projects.

Contact [office@nanotechia.org](mailto:office@nanotechia.org) for more details.

### EuroNanoForum 2019 at a glance:

The Presidency-associated event is hosted each 2 years: this year it anticipates approximately 1000 participants from Europe and across the globe and offers opportunities for discussions on cross-sectorial challenges focusing on both the industrial application of research results and future strategic research priorities in the area of Nanotechnology and Advanced Materials of the Horizon 2020 NMBP Programme and beyond.

- Europe's largest networking conference focusing on nanotechnologies and advanced materials science, innovation and business
- Open to the scientific community, representatives from industry, research and innovation, and policy makers
- Offers excellent opportunities to debate on cutting edge research and successful industrial implementations in the field

## EuroSciCon Conference on Nanotechnology

<https://nanotechnology.euroscicon.com>

EuroSciCon Conference on Nanotechnology” takes place from July 08-10, 2019 in the city of Prague, Czech Republic

Delegates and speakers from industries, research institutes, academic universities, associations and societies will be attending.

For more details: - <https://nanotechnology.euroscicon.com>

Alicia Harper, EuroSciCon Ltd  
[nanotechnology@nanoeuroscicon.com](mailto:nanotechnology@nanoeuroscicon.com)



## NANOCON 2019 - 11th International Conference on Nanomaterials - Research & Application

<https://www.nanocon.eu>

**Venue: Hotel Voronez I, Krizkovskeho 458/47, Brno, Czech Republic, EU.**

**Date: Oct 16-18, 2019**

Nanomaterials - preparation, properties, characterization. Applications of nanotechnologies in industry, environment, medicine and biotechnology. The influence of nanomaterials to environment, health; metrology and standardization of nanomaterials.

The topic nanomaterials and energy will be accentuated in the XI. NANOCON conference. The conference will be opened by the plenary session with the appearance of significant speakers focused on research and applications of nanomaterials.

### Conference abstracts will be accepted into five theme sessions:

- A – Nano for Electronic, Magnetic and Optic Applications. Carbon Nanostructures, Quantum Dots;
- B – Industrial & Environmental Applications of Nanomaterials;
- C – Bionanotechnology, Nanomaterials in Medicine;
- D – Monitoring and Toxicity of Nanomaterials;
- E – Advanced Methods of Preparation and Characterization of Nanomaterials.

As part of the poster session the Best Poster Contest will be announced. The first three winners and five honorable mentions will be awarded.

Katerina Sedlackova, TANGER Ltd.

[ksedlackova@tanger.cz](mailto:ksedlackova@tanger.cz)

General information e-mail: [info@nanocon.cz](mailto:info@nanocon.cz)



<http://iptc2019.eu/>

We are happy to announce the **12<sup>th</sup> International Particle Toxicology Conference**, which will take place 11<sup>th</sup> – 13<sup>th</sup> September 2019 in Salzburg Austria. It is preceded by an **International Young Scientist Forum**, 9<sup>th</sup> – 10<sup>th</sup> September. Information and registration about both events can be found on the website [iptc2019.eu](http://iptc2019.eu/).

**The IPTC series of conferences** brings together experts on particle toxicology. The audience is worldwide and all types of particles are considered. The conference covers basic research issues, but has a strong focus on applications of particle toxicology, which are in work place safety, environmental safety, consumer safety, medical and diagnostic developments and other fields.

**A focus of the Salzburg meeting** will be the challenges to translate knowledge derived from particle safety research into regulation and legislation, which is now a main issue in the field. The first IPTC in Austria will contribute to developing solutions for the benefit of workers, consumers, patients and environment.

We invite you to Salzburg and look forward to seeing you here!

#### Organizing Committee:

Nils Bohmer, DECHEMA  
 Flemming R. Cassee, RIVM  
 Albert Duschl, U Salzburg (Chair)  
 Andrea Haase, BfR  
 Michael Riediker, SCEOH  
 Roel Schins, IUF  
 Christoph Steinbach, DECHEMA

#### Keynote Speakers:

Matthew Campen, U New Mexico, USA  
 Mary Gulumian, U Witwatersrand, South Africa  
 Jonathan Powell, U Cambridge, UK  
 Ng Kee Woei, Nanyang Technical U, Singapore  
 Andrea de Vizcaya-Ruiz, Polytechnique Inst, Mexico



Faculty of Natural Sciences  
 Hellbrunner Str. 34  
 5020 Salzburg, Austria





## PATROLS project stakeholder workshop



### Advancing Adverse Outcome Pathway (AOP) Development for Nanomaterial Risk Assessment and Categorization

September 12, 2019, Paris (tbc)

PATROLS (Physiologically Anchored Tools for Realistic nanomaterial hazard assessment) is holding a stakeholder workshop to present and discuss advanced methods and tools being developed within the project, which can also be used to support development of AOPs for nanomaterial hazard assessment.

The workshop will include presentations on advanced systems in the areas of:

Ecotoxicology

*In silico* hazard testing systems

*In vitro* human tissue models

The aim of the workshop is to showcase and seek stakeholder feedback on tools being developed within PATROLS, and participants are encouraged to take an active role in our discussions.

You are invited to express an interest in attending this stakeholder workshop and a formal invitation will be sent when the final date and venue are confirmed.

[EXPRESS AN INTEREST HERE](#)



## EU-U.S. NanoEHS Communities of Research (CORs) Workshop

October 15-16, 2019, Aix en Provence, France

EU\_US NanoEHS CORs

<https://us-eu.org>

Camille de Garidel-Thoron | CEREGE

[cgaridel@cerege.fr](mailto:cgaridel@cerege.fr)



**SAVE THE DATE: October 15-16, 2019**

The 2019 EU-U.S. NanoEHS CORs Workshop will take place October 15-16, 2019, at the Europôle de l'Arbois in Aix en Provence, France.

The workshop is organized by the European Commission and the U.S. National Nanotechnology Initiative and co-hosted by the CEREGE (CNRS, AMU) and the Labex SERENADE.

More details are coming soon, <https://us-eu.org/save-the-date-october-15-16-2019/>



## NANOCON 2019

### 11th International Conference on Nanomaterials Research and Application

**Venue:** Hotel Voronez I, Krizkovskeho 458/47, Brno, Czech Republic, EU.

**Date:** Oct 16-18, 2019

**e-mail:** [info@nanocon.cz](mailto:info@nanocon.cz)

**Website:** <https://www.nanocon.eu>



Nanomaterials - preparation, properties, characterization. Applications of nanotechnologies in industry, environment, medicine and biotechnology. The influence of nanomaterials to environment, health; metrology and standardization of nanomaterials. The topic nanomaterials and energy will be accentuated in the XI. NANOCON conference. The conference will be opened by the plenary session with the appearance of significant speakers focused on research and applications of nanomaterials.

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B – Industrial & Environmental Applications of Nanomaterials;

C – Bionanotechnology, Nanomaterials in Medicine;

D – Monitoring and Toxicity of Nanomaterials;

E – Advanced Methods of Preparation and Characterization of Nanomaterials.☐

As part of the poster session the Best Poster Contest will be announced. The first three winners and five honourable mentions will be awarded.

## Materials Science & Nanotechnology Conference

February 26-28, 2020 | Lisbon, Portugal

The Future Materials organizing committee invites participants across the globe to attend its annual flagship conference, Materials Science and Nanotechnology Conference which is going to take place during February 26 -28, 2020 in Lisbon, Portugal.

Future Materials 2020 is comprised of various sessions designed to offer comprehensive symposiums that address current issues in the field of Materials Science and provides a fantastic opportunity to network with your peers from academia and industrialists which includes professors, researchers, Materials Scientists, Materials Engineers, and Students.

Submit your research paper here: <https://materialsconference.yuktan.com/abstract-submission.php>

**Materials Science & Nanotechnology Conference**  
February 26-28, 2020 | LISBON, PORTUGAL

**Keynote Speakers**

				
<b>Mohammad Nazeeruddin</b> Professor, École polytechnique fédérale de Lausanne, Switzerland	<b>Maurizio Prato</b> Professor, University of Trieste, Italy	<b>Murali Sastry</b> CEO, IITB-Monash Research Academy	<b>Gianfranco Pacchioni</b> Vice-Rector for Research, University of Milano-Bicocca, Italy	<b>Jordi Arbiol</b> President, Spanish Microscopy Society (SME)

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The EU NanoSafety Cluster maximises the synergies between European-level projects addressing the safety of materials and technologies enabled by the use of nanoparticles. The studied aspects include toxicology, ecotoxicology, exposure assessment, mechanisms of interaction, risk assessment and standardisation.

The Cluster is an initiative of the European Commission Directorate-General for Research and Innovation (DG RTD), which sponsors these large projects. Overall, Europe targets safe and sustainable nanomaterials and nanotechnology innovations. Cluster projects contribute to assuring environmental health and safety (EHS) of this Key Enabling Technology.

**The Cluster also is an open platform for dialogue and exchange. Researchers, regulators, administrators, industry, civil society representatives... if you have an interest in EHS and nanotechnology, you are very welcome to participate in Cluster activities whether or not you are a partner in formal European projects.**

This site is your gateway to the [Cluster projects](#), as well as to [Working Groups](#) formed to address transversal concerns. The structure of the cluster can be found [here](#).

This included [Task forces](#) that work on a specific topic during a limit duration



### Engage with the NanoSafety Cluster...

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