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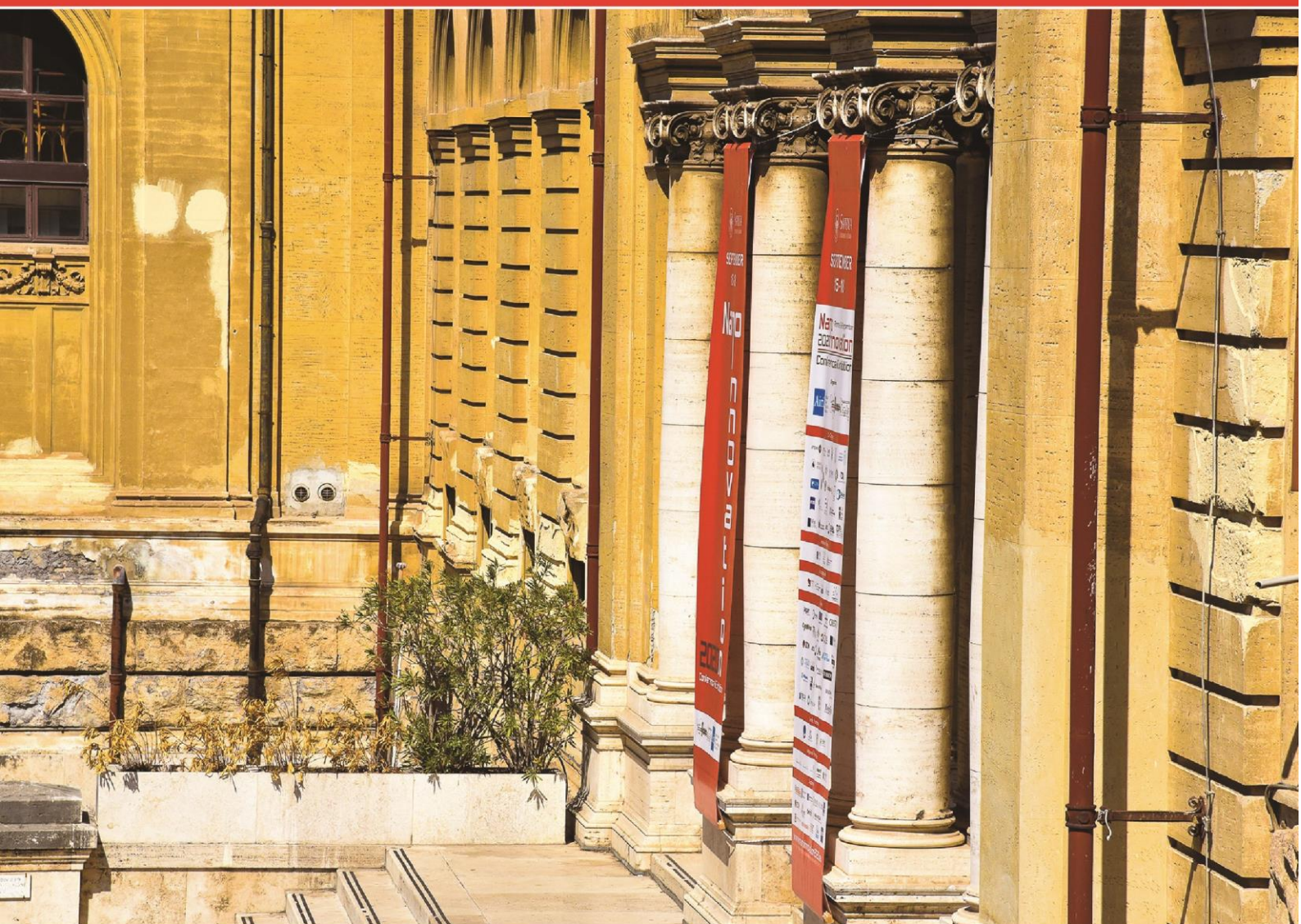
*Renaissance Cloister by Sangallo
Faculty of Civil and Industrial Engineering*

SEPTEMBER **21-24** 2021

Nano 2021Innovation

Conference & Exhibition

Rome, 21-24 September



www.nanoinnovation2021.eu

DESCRIPTION

The sixth edition of **NanoInnovation** will be held in **September, 21-24 in Rome**, hosted again in the renaissance cloister by Sangallo at the Faculty of Civil and Industrial Engineering of “Sapienza” University of Rome.

NanoInnovation is a reference event for the wide and multidisciplinary community involved in the study and development of advanced materials such as nanotechnologies and in their integration with other enabling technologies (KETs) in all application fields.

The main purpose of NanoInnovation 2021 is to present to a wide and broad audience, state-of-the-art research, recent achievements and global trends in nanoscience and nanotechnology, as well as promoting cross-disciplinary interactions highlighting developments in this field of research. The conference aims to bring together leading academics, scientists, researchers and any professional operating in the field of nanotechnology in order to exchange and share ideas, knowhow and information.

The conference will place special emphasis on nanomaterials and their applications, nano-devices, nano-biotechnology, health and environmental safety, nanomedicine, nanotoxicology, transports, innovative and smart textiles, additive and 3D manufacturing, electronics, micro and nano-systems and much more. NanoInnovation has been following the international trends on Nanotechnology hosting all the aspects of the discipline from the classical aspects in materials science to the most innovative applications where the soft matter and the living matter are involved. As an example, the 2021 edition will focus the attention on the Life Cycle Assessment (LCA), a scientific method able to provide reliable information on the impact of technological innovation in the real world.

The conference has been conceived as a not traditional forum, having several purposes beyond the classical aspects of scientific dissemination. **NanoInnovation is a forum where learning in which direction innovations are going.**

Main goals of NanoInnovation 2021 are:

- Providing a **meeting place** for academia, research, policy makers, companies, and business operators
- Displaying **state of the art** developments in applied research on Key Enabling Technologies
- Acting as **showcase** of innovations related to KETs
- Promoting **knowledge transfer** and **co-creation processes** among different R&D players and sectors
- Offering **capacity building** and **training** opportunities for both scholars and professionals

The programme of NanoInnovation 2021, strongly oriented toward application and market aspects, foresees the presence of highly qualified speakers and organizations.

COMMITTEES The event is managed by the following Committees, including recognized experts from scientific or industrial communities:

- Organizing Committee
- Steering Committee
- Programme Committee
- Honorary Committee

The list of Committees members is available on the event website.

CO-ORGANIZERS

Here is the list of co-organizers of the 2021 edition of NanoInnovation:

- Sapienza University of Rome;
- Polytechnic of Turin;
- The "Mediterranean" University Of Reggio Calabria;
- University of Messina;
- University of Modena and Reggio Emilia;
- University of Udine;
- Scuola Normale Superiore;
- Assing;
- Jeol Italia;
- ZEISS;
- CNR – IMM - Institute for Microelectronics and Microsystems;
- CSGI (Center for colloid and surface science);
- Distretto Tecnologico Sicilia Micro e Nano Sistemi;
- Italian Space Agency;
- Fondazione Bruno Kessler;
- Fondazione Don Gnocchi;
- ENEA;
- Istituto Italiano di Tecnologia;
- Istituto Nazionale di Ricerca Metrologica;
- Istituto Superiore di Sanità;
- Nanokey.

INSTITUTIONAL PARTNERS & SCIENTIFIC PATRONAGES

Institutional partners include: APRE – Agency for the Promotion of European Research, Ordine degli Ingegneri della Provincia di Roma, Fondazione Ordine degli Ingegneri della Provincia di Roma. Scientific patronages include: AICing – Associazione Italiana di Chimica per Ingegneria; SCI – Società Chimica Italiana; SIA – Società Italiana di Agronomia; SIPaV – Società Italiana di Patologia Vegetale; SISM – Italian Society for Microscopical Sciences. Among Institutional Patronages we find: Italian Government - Presidency of the Council of Ministers; Ministry of Education and Research; Minister of Defence; Regione Lazio.

MAIN TOPICS

Nanotechnologies and their integration with KETs in the following areas

- **INDUSTRY 4.0, ADDITIVE & 3D MANUFACTURING**
- **AGRI-FOOD**
- **CONSTRUCTION, BUILDING & RESTORATION**
- **ELECTRONICS, MICRO AND NANOSYSTEMS**
- **ENERGY & ENVIRONMENT**
- **HEALTH & NANOMEDICINE**
- **INNOVATIVE AND SMART TEXTILES**

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- NANO-BIO RELATED PRODUCTS
- NANOFABRICATION
- NANO-MATERIALS BASED INNOVATION
- NANOSCALE CHARACTERIZATION AND MEASUREMENTS
- SAFETY AND SOCIAL IMPACTS
- TRANSPORT, SPACE & AERONAUTICS
- and much more...

MASTERPLAN & DRAFT CONFERENCE PROGRAMME

The four days event is structured in the following modules:

- Opening day: Plenary opening remarks, introductory lectures on research, policy and industrial strategy issues (afternoon), and special sessions for specific audiences (morning)
- 2nd to 4th days: Parallel technical and scientific symposia for all participants and thematic training courses, targeted to specific audiences

Oral sessions are complemented by a wide exhibition area, poster sessions, match-making and social events.

Tuesday, September 21 st	Wednesday, September 22 nd		Thursday, September 23 rd		Friday, September 24 th		
09.00 - 10.45	09.00 - 10.30		09.00 - 10.30		09.00 - 10.30		
Introduction session on "Innovation Policies and Funding"	Multi-track sessions	Update trainings and Schools	Multi-track sessions	Update trainings and Schools	Technology transfer: challenges and opportunities	Multi-track sessions	Update trainings and Schools
10.30 - 11.00 Break and visit of the exhibition area							
11.15 - 13.00	11.00 - 12.30		11.00 - 12.30		11.00 - 12.30		
Round table on "Research Infrastructures and related national networking"	Multi-track sessions	Update trainings and Schools	Multi-track sessions	Update trainings and Schools	Technology transfer: challenges and opportunities	Multi-track sessions	Update trainings and Schools
12.30 - 14.00 Break and visit of the exhibition area							
14.00 - 16.30	14.00 - 15.30		14.00 - 15.30		14.00 - 15.30		
Opening Ceremony Scientific Plenary Session on Advances and Innovation on Life Science	Multi-track sessions	Update trainings and Schools	Multi-track sessions	Update trainings and Schools	Technology transfer: challenges and opportunities	Multi-track sessions	Update trainings and Schools
15.30 - 16.00 Break and visit of the exhibition area							
17.00-19.00	16.00 - 17.30		16.00 - 17.30		16.00 - 17.30		
Plenary Session on Advances and Innovation on Sustainability and Energy Transition	Multi-track sessions	Update trainings and Schools	Multi-track sessions	Update trainings and Schools	Technology transfer: challenges and opportunities	Multi-track sessions	Update trainings and Schools
Exhibition, Satellite Events, Poster Session and Networking activities							

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Among all the activities that will be held during NanoInnovation, we also find:

- **Schools & Courses** such as: *School on Nanomedicine*, co-organized in collaboration with Istituto Superiore di Sanità; *School on nanotechnologies: processes and applications to sensors and actuators*, co-organized in collaboration with It-fab – Italian Network for Micro and Nano Fabrication; and *Corso di Aggiornamento Professionale per Ingegneri*, co-organized in collaboration with Ordine degli Ingegneri della Provincia di Roma.
- **Special Events**, such as: *YoungInnovation*, co-organized in collaboration with University Magna Graecia of Catanzaro that will host a series of symposia where the state of research will be presented by young researchers (≤ 35 years); *Genetic Point of Care*; co-organized in collaboration with University of Messina, Bruno Kessler Foundation and Polytechnic of Turin, that will focus on genetic point-of-care technologies in the SARS-CoV-2 framework; *Electron Microscopy in Material Science in Italy*, co-organized in collaboration with CNR-IMM and IOM, that will deep the current overview of transmission electron microscopy in materials science in Italy.
- **Networking Event**: co-organized in collaboration with APRE- Italian Agency for the Promotion of European Research, that will offer different chances for presenting ideas and meet potential research and business partners for all participants.
- **Prizes**: during the event will be presented the winner of the *NEST Prize*, promoted in collaboration with Laboratorio NEST of Scuola Normale Superiore and sponsored by Nippon Gases – Rivoira.
- **Poster Session**: Also this year, a Poster Session will be organized. Posters will be displayed in the exhibition area and should address scientific and industrial developments in application sectors relevant for nanotechnologies and their integration with KETs.

NanoInnovation 2021 will be held in September 21-24, in Rome, hosted by the Faculty of Civil and Industrial Engineering of “Sapienza” University of Rome, Via Eudossiana 18, 00185 Rome.

Conference secretariat: cristina.gippa@nanoinnovation.eu
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Conference website for the detailed program: www.nanoinnovation2021.eu

NanoInnovation 2021 and Istituto Superiore di Sanità

Together with other research institutions, universities and associations, the Multidisciplinary Unit on “Nanomaterials and Nanotechnologies” (SMT) and the Core Facilities (FAST) at ISS will co-organize the conference by both being part of the Steering Committee. Two workshops will be organized by SMT, in the topics “Nanomedicine” and “Agri-Food and one by FAST in the topic “Life science & innovative materials”.

AIMS

The workshop “*New drug delivery systems in biomedical application*”, scheduled within the topic “Nanomedicine”, will be focused on the development of innovative systems for the suitable release of therapeutic agents through different technological approaches, for the realization of nanocarriers able to improve the therapeutic value of drugs by the modification of their distribution, the increase of their effectiveness, and the reduction of their toxicity.

The workshop “*Nanosafety in food: Regulatory needs*”, scheduled within the topic “Agri-food”, will be focused on the activities carried out by ISS, in collaboration with the Italian Institute of Technology (IIT) and EcamRicert, on the development of an OECD Guidance Document for the detection and identification of the orally-ingested nanomaterials, by an integrated *in vitro* approach. These activities are developed in the framework of the EU H2020 NanoHarmony project -Towards harmonized test methods for nanomaterials, (GA n°885931).

The workshop entitled “*From life sciences to innovative materials: stories of successful integration of technology and nanoresearch*”, scheduled within the topic “Life science & innovative materials”, will recount how life science research increasingly benefits from the support of specialized and sophisticated tools, including electron and optical microscopy, mass spectrometry, cell sorting, MRI, NMR and EPR, sequencing and computation. Given the growing complexity of these technologies and the related analysis and interpretation of data, life science researchers often have to consult and collaborate with scientists with appropriate technological skills. Such collaborations are therefore key elements for an effective use of technical resources in addressing biological and medical research issues. This session will present some successful experiences deriving from this type of partnerships and will focus on applications in research on cancer therapy, theranostics and toxicology of nanoparticles.

PROGRAM OF THE WORKSHOPS CO-ORGANIZED BY ISS

Wednesday, September 22

Macro-area: **Health**

Sub-area: **Nanomedicine**

Workshop: **New drug delivery systems in biomedical applications**
h. 9.00 – 12.30

Chairs: *Annarica Calabrini, Stefania Meschini*

Symposium I

A novel approach for determination of size and absolute concentration of liposomes based on Laser Transmission Spectroscopy (LTS) technique.

Simona Sennato

Graphene oxide nanocomposites for drug delivery in cancer cells.

Paolo Versaci

Gold nanorods: how the structure-property relationship controls biotechnological applications.

Martina Marsotto

Symposium II

Free and poly-methyl-methacrylate-bounded BODIPYs for photodynamic therapy.

Marzia Gariboldi

Transport of cationic liposomes in a human Blood Brain Barrier model: role of the stereochemistry of lipid components on liposome physico-chemical and biological features.

Beatrice Simonis

Direct targeting of metastatic melanoma cells through anti-CSPG4-conjugated nanoparticles and natural loaded vesicles.

Maria Beatrice Arasi

Macro-area: **Agri-food**

Sub-area: **Agri-food - AgriNanoTechniques: Nanomaterials for products and application in agriculture**

Workshop: **Nanosafety in food: Regulatory needs**
h. 14.00 – 15.30

Chairs: *Flavia Barone, Isabella De Angelis*

Introduction.

Flavia Barone

Nano in Food project: A collaborative effort to increase the analytical capacity in EC Member States.

Josefa Barrero

***In vitro* simulated digestion models: state of the art.**

Stefania Sabella

Advanced *in vitro* model of intestinal barrier.

Isabella De Angelis

Analytical methodologies for the detection of nanomaterials: state of the art.

Federico Benetti

Thursday, September 23

Macro-area: **Health**

Sotto area: **Life Science & Innovative Materials**

Workshop: **From life sciences to innovative materials: stories of successful integration of technology and nanoresearch**
h. 9:00 - 12:30

Chairs: *Marco Crescenzi, Rossella Canese*

Symposium I

Imaging and single single-cell mass cytometry in pediatric high-grade glioma.

Lucia Lisa Petrilli

Tumor on a chip: using microfluidic devices to understand interaction between tumor and immune cells.

Lucia Gabriele

Natural Killer-derived extracellular vesicles: immune sensors and antitumour bullets.

Luana Lugini

Investigating nanocellulose uptake and local effects following oral exposure: the NANOCELLUP project.

Francesco Cubadda, Olimpia Vincentini

Symposium II

Uncovering the release of micro and nanoplastics from disposable face masks at times of COVID-19.

Stefano Amalfitano

Nanoparticles and Theranostics: State-of-the-art of clinical experience.

Andrea Laghi

Self-assembling ferritin-dendrimer nanovehicles for targeted delivery of small RNAs to tumor cells.

Alberto Macone

Magnetic Nanoparticles in Bioreactors for Theranostic Applications: Host-Guest Characterization by EPR and Mössbauer Spectroscopies.

Maria Fittipaldi

Speakers and Moderators

Stefano Amalfitano, Water Research Institute (IRSA)-CNR, Monterotondo Rome
Maria Beatrice Arasi, Department of Oncology and Molecular Medicine, ISS, Rome
Josefa Barrero, EU Joint Research Center, Ispra
Flavia Barone, Department of Environment and Health, ISS, Rome
Federico Benetti, ECSIN-European Center for the Sustainable Impact of Nanotechnology, EcamRicert SRL, Rovigo
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Simona Sennato, CNR-ISC and Department of Physics, Sapienza University of Rome, Rome
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GENERAL INFORMATION

Venue

The event will be held at the Faculty of Civil and Industrial Engineering, Sapienza University of Rome, located in Via Eudossiana 18.

Due to the Coronavirus outbreak, the Conference will be streamed and will see the participation on site of a limited number of people, which will be determined according to the progress of the pandemic.

Target audience

The event is mainly addressed to personnel belonging to research institutions interested in the development of advanced technological resources for the protection and promotion of public health.

Maximum number of participants: 200

Registration

Participation is free of charge.

Registration is available on the conference web site <http://www.nanoinnovation2021.eu/home>

Certificate of participation

The certificate of participation may be requested from: cristina.gippa@nanoinnovation.eu. The certificates will be sent to applicants within two weeks of the end of the conference. Those who participate in presence can request the certificate directly at the reception and they will receive it with the same timing.

For further information, please:

- a) visit the conference web site <http://www.nanoinnovation2021.eu/home>;
- b) send an email to nanoinnovation2021@iss.it;
- c) contact the Organizing Staff at the above reported addresses.