



*Harmonisation of EU-wide nanomechanics protocols and relevant data exchange procedures, across representative cases; standardisation, interoperability, data workflow*

# 1st Exploitation and Dissemination Open Day Workshop

## Preliminary Agenda

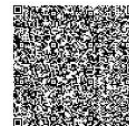
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**Date:** 3 & 4 July 2023

**Time:** BSM

**Venue:** Ansys UK Limited

62 Clifton Road  
Cambridge, CB1 7EG  
United Kingdom  
*(Hybrid meeting)*



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



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# nanoMECommons

The NanoMECommons is a 4-year project, which started in February 2021 and it is led by the National Technical University of Athens (NTUA). This project is funded by the EU H2020 Research and Innovation action - RIA (€ 5 9 million – Grant Agreement 952869 - Call: DT-NMBP-35-2020). It has the participation of 19 partners (11 from industry and 8 academia and research), coming from 10 countries.

NanoMECommons will establish a transnational and multidisciplinary research and innovation network to tackle the problem of nanomechanical materials characterisation in multiple industries. The focus of NanoMECommons is to employ innovative nano-scale mechanical testing procedures in real industrial environments, by developing harmonised and widely accepted characterisation methods, with reduced measurement discrepancy, and improved interoperability and traceability of data. To achieve this goal, NanoMECommons will offer protocols for multi-technique, multi-scale characterisations of mechanical properties in a range of industrially relevant sectors, together with novel tools for data sharing and wider applicability across NMBP domain: reference materials, specific ontologies and standardised data documentation.



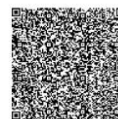
## nanoMECommons Open Day 2023 Workshop – Venue

The 1st Dissemination and Exploitation Open Day Workshop of the **NanoMECommons** Project is being hosted by the project partner Ansys at:



**Ansys UK Limited**  
62 Clifton Road  
Cambridge, CB1 7EG  
United Kingdom

[www.ansys.com/materials](http://www.ansys.com/materials)



## nanoMECommons Open Day 2023 - Preliminary Agenda

Please take notice that all times shown in the agenda are BST

### DAY 1

**3<sup>rd</sup> July 2023**

**10:20** Arrival, Registration & Refreshments (opening of online session)

**10:30** *Welcome to the nanoMECommons Exploitation & Dissemination Open Day 2023*

**Davide Di Stefano**, Senior Project Manager R&D, Ansys,

**David Mercier**, Sr Collaborative R&D Projects Manager, Ansys

*nanoMECommons Exploitation & Dissemination Open Day 2023 Host & Organiser*

**Bojan Boskovic**, Project Dissemination and Exploitation Manager, Cambridge Nanomaterials Technology Ltd (CNT), UK

*nanoMECommons Exploitation & Dissemination Open Day 2023 Organiser*

**10:40** **David Mercier & Davide Di Stefano**, Ansys

**Title: Ansys presentation and an overview of Collaborative Research & Development Activities**

**10:55** **Costas A. Charitidis**, Project Coordinator, RNano- NTUA, Greece (*online*)

**Title: NanoMECommons project main achievements and impacts**

Nanomechanics and nanomechanical testing have become pervasive tools that are currently valuable and applicable to a relevant range of industrial stakeholders. Application examples include automotive (coatings and structural alloys), microelectronics (MEMS and multi-stack devices), energy (batteries, materials for high temperatures), chemical, pharmaceuticals (micro-capsules for drug delivery) and buildings (thin films for energy efficient windows, nano-enabled cement materials). The main challenge is to enable industry achieving access to fast and reliable analysis of a wide range of material properties (not only strength, but also hardness, stiffness, toughness, residual stress, reliability) by using fast and reproducible methods. In this complex framework, the common requirements for the application of nanomechanical testing methods to industry are represented by (a) the ability of testing complex heterogeneous systems at multiple length scales, (b) the combination between multiple techniques, (c) the possibility of using nano-scale mechanical characterisation methods on the production line and (d) the harmonization and standardization of protocols (from sample preparation to the final storage and usage of the data).

On this basis, the main ambition of the project NanoMECommons is to become the cornerstone for the exploitation of high-resolution cutting-edge nanomechanical characterisation by the industry by competence development in partnership with academic and research experts in the field. To achieve this, the project will focus on a series of research and innovation actions, starting from the development of state-of-the-art nanomechanical testing method, to novel metadata structures for materials characterisation and (finally) pre-normative activities and transfer the developed protocols to industry via a proper ontological/semantic framework for organising and storing characterisation knowledge that serve the NanoMECommons use cases.

**11:10 Georgios Konstantopoulos, RNano- NTUA, Greece (online)**

**Title: NTUA achievements within NanoMECommons project**

Within NanoMECommons project NTUA has worked in the development of novel high-speed nanoindentation protocols with depth sensing capability to characterise a wide range of heterogeneous materials among the NanoMECommons industrial use cases, which include thin films, multi-layered materials, and multi-phase materials. The nanomechanical testing protocols have been harmonised on standard materials in synergy with project partners and across different nanoindentation instruments to ensure reliability of data acquired using different protocols and customisation ability on use cases. Nanomechanical phase mapping has been conducted to correlate mechanical properties with structure recognition utilising artificial intelligence and machine learning, whereas several cases have been complemented with structural characterisation by nanodiffraction in synchrotron facilities and EBSD for validating the phase identified by the meta-analysis of the nanoindentation data. The procedure, testing methods, sequence and protocols have been used to extract the glossary and taxonomy of standardised nanoindentation protocols to serve as a basis on the ontological developments of CHAMEO and nanoindentation domain ontology, ensuring interoperability and searchability of the protocols on a materials-specific basis.

**11:25 David Mercier, Ansys, France**

**Title: Building the nanoMECommons Database: a workflow for indentation data digitalisation to numerical simulations**

Nanoindentation is a widely used surface technique to measure mechanical properties of materials at small scale [1]. Recently, high-speed indentation is becoming more popular as real-time, in-line, and online testing are used to collect large datasets, on the load-depth response of materials, samples, and (also intermediate) products for quality control and quick manufacturing characterization of test specimens. Such approach can be for example extremely relevant to gain further insights into the process–structure–property correlations of highly heterogeneous materials [2]. However, large amount of data is usually generated during such experiments, requiring in parallel metadata storage for reproduction and reuse of such information. Indeed, in addition to the traditional nanoindentation approach of storing only the calibrated load–displacement curve, the metadata contain all the information on the sample, user, environmental conditions, calibration procedure and related data, raw data, analysis process and finally the analyzed data. In this way, a new data management strategy designed for nanoindentation results must be developed.

To tackle this challenge, the EU H2020 RIA funded project NanoMECommons (Grant Agreement 952869) has started in February 2021 [3]. With a consortium of 19 partners (11 from industry and 8 academia and research), coming from 10 countries and led by the National Technical University of Athens (NTUA), this project focuses on employing innovative nano-scale mechanical testing procedures in real industrial environments, by developing harmonised and widely accepted characterisation methods, with reduced measurement discrepancy, and improved interoperability and traceability of data. In this context, Ansys Inc. has been implementing a centralized materials information management platform to capture characterization data and protocols (experimental and virtual), ensuring FAIR principles for the project data and protocols [4-5]. It will also establish (a) software tools for complex data handling for characterization, model calibration and validation, and their availability through digitalized workflows and (b) a reference database for selection of materials and related protocols for reduced time to market, and improved resource efficiency. For the current presentation, the current database structure and workflows to capture nanoindentation data (see Figures 1 and 2) will be presented and discussed [6].

**11:55** Luca Belforte, Centro Ricerche FIAT (CRF), Italy (*online*)

**Title: The evolution of the materials in the vehicles of the future: critical raw materials and challenges in characterization.**

The electrification in automotive is rapidly changing the value chain of the components, with an economical and technical impact that was partially underestimated. Moreover, the shortages of materials and components, amplified by the geopolitical instability, make the situation quite complex and unclear, forcing the industries to explore alternative solutions.

New materials are becoming strategic in automotive; most of them was already used but in different ways or forms, other materials are completely new in this field. OEMs and suppliers are trying to recover the gap in the knowledge and competences and for doing so, new reliable and repeatable characterization techniques are needed, to bring the new materials and the new applications to their full technological maturity

**12:25** *Discussion*

**13:00** *Lunch and Networking*

*Online exhibition ([www.nanoMECommons.net/EXPO](http://www.nanoMECommons.net/EXPO))*

**14:00** Alexandra Simperler, Goldbeck Consulting Ltd, UK

**Title: A tale about high standards, ontologies, and networking**

We are facilitating a CEN Workshop Agreement (CWA) on multi-technique characterisation and modelling protocols building on CHADA and MODA CWAs. The aim is standardised protocol documentation to support interoperability. We are engaged with stakeholders from both the EMMC and the EMCC. Ontologies play a key role in this standardisation, and GCL leads the CHAMEO (Characterisation Methodology Ontology) design and development based on CHADA. We have defined the scope of the ontologies through a methodology which includes Competency Questions. The ontology is based on EMMO and the development follows a modular approach. CHAMEO captures the common aspects across different characterisation techniques. Based on CHAMEO and EMMO, ontologies and taxonomies are being developed to model the specific characterisation techniques (first addressed cases are 4D Nanoindentation and FIB).

**14:30** Yoav Nahshon, Fraunhofer IWM, Germany (*online*)

**Title: Open Innovation Environment (OIE): a web application for curating interoperable experiment protocols (CHADA)**

The presentation will show the latest state of the web application Open Innovation Environment (OIE) which is designed to curate and manage interoperable experiment protocols for characterisation of materials (CHADA). OIE provides a user-friendly interface, which enables researchers to share, curate, and manage their protocols effectively. The application aims to promote open innovation by making it easier for researchers in the European community to collaborate and share their protocols and their related data. Through the use of OIE, researchers will be able to more easily reproduce previous results as well as build up on top of them.

**15:00** Ferry Kienberger, Keysight Technologies Austria GmbH, Austria (*online*)

**Title: Interoperable Characterization Data for Battery Models and Gigafactories**

Materials characterization and battery test methods are developed including advanced calibrations and error correction methods. Standard operating procedures are provided for electrochemical impedance spectroscopy, including metrological evaluation of accuracy and error sources. Interoperable data formats are developed, and the test methods are evaluated in a round-robin interlaboratory comparison together with automotive manufacturers and national metrology institutes. We show how the test data is used as input data to modeling algorithms, including physics based FEM (finite element method) models, grey box models (e.g. equivalent electrical circuit models), and black box machine learning models. Thereby, important parameters of the cell performance are provided, which are relevant for evaluating the SoH (State of Health) and second life applications of batteries. The interoperable data formats are relevant for the larger scientific and industrial ecosystem, providing robust industrial use cases for battery manufacturing Gigafactories and for the machine learning community.

**15:30** Elias Koumoulos, IRES, Belgium (*online*)

**Title: From material selection to product design, a life-cycle qualification perspective**

Analysis and design, as the most critical components in material science, require a highly rigorous approach to assure long-term success. Due to a recent increase in the amount of available experimental data, large databases now contain a depth of knowledge on important properties of materials. The use of this information, combined with Machine Learning (ML) solutions, can enhance the materials' manufacturing process and efficiency. Indeed, ML can predict material properties, minimize the time and cost of laboratory testing, as well as optimize critical manufacturing processes. Combined with life cycle assessment, safety and hazards identification, digitized characterisation is proved a strong tool towards decision making.

**16:00** Coffee break & networking

Online exhibition ([www.nanoMECommons.net/EXPO](http://www.nanoMECommons.net/EXPO))

**16:20** Evangelia Karaxi, CONIFY, Greece (*online*)

**Title: Boosting sustainability through R&D and Innovation in AM**

The rising demand to address environmental impact and decrease CO2 emissions applies to all industries and technologies. As more companies in various sectors make commitments to achieve carbon neutrality or net-zero CO2 emissions in the coming decade(s), additive manufacturing (AM) also needs to contribute to a sustainable future. Sustainability encompasses more than just reducing CO2 emissions; it includes recycling, the use of renewable raw materials, waste mitigation, and all other aspects of environmental, social, and governance dimensions. Currently, there is a lack of adequate transparency, preventing us from making a general statement regarding the climate-friendliness of additive manufacturing (AM).

Inspired from these aspects, CONIFY focuses on two main routes to provide more sustainable powder-based metal AM solutions, the one being based on feedstock characterisation and degradation assessment for recycling and the second centered on computational design for lightweighting. A brief summary of company's activities not limited to nanoMECommons project will be presented.

**16:50** *Discussions*



**17:00** End of day one

**19:00** Gather before dinner in front of the main entrance of Kings College (King's Parade, Cambridge CB2 1ST) – optional for those staying in Cambridge



## **DAY 2**

**4th July 2023**

**08:30** Arrival, registration & refreshments (opening of online session)

**08:50** Welcome to the nanoMECommons Exploitation & Dissemination Open Day 2023 – Day 2

**Daive Di Stefano**, Senior Project Manager R&D, Ansys,

**David Mercier**, Sr Collaborative R&D Projects Manager, Ansys

*nanoMECommons Exploitation & Dissemination Open Day 2023 Host & Organiser*

**Bojan Boskovic**, Project Dissemination and Exploitation Manager, Cambridge Nanomaterials Technology Ltd (CNT), UK

*nanoMECommons Exploitation & Dissemination Open Day 2023 Organiser*

**09:00** **Donna Dykeman**, Ansys, UK (*online*)

**Title: SaaS model for the I-Tribomat Project**

**09:30** **Ennio Capria**, European Synchrotron (ESRF), France

**Title: The Novel high throughput routine characterisations.**

**10:00** **Amit Bhave**, CMCL, UK (*Guest speaker*)

**Title: Materials, laboratories, buildings, cities and regions: A semantic digital perspective**

**10:30** **Saqib Rashid**, University of Roma Tre, Italy (*online*)

**Title: Correlative High-speed nanoindentation in complex materials**

Advanced complex materials, like Q&P and Trip steels require multi-technique approaches to the problem of microstructure-property-performance assessment. In nanoMECommons we are working on harmonized multi-technique protocols to gather quick and reliable information. This work presents out latest results on EBSD and high-speed nanoindentation mapping, with an alternative fast and straightforward method for evaluating and correcting pile-up effects in nanoindentation experiments. Applications of high-speed nanoindentation data will be evaluated for duplex steels according to the proposed multi-technique methodologies.

**11:00** **Salim Fachouri**, Organic Electronic Technologies (OET) P.C, Greece (*online*)

**Title: Large Scale Roll-to-Roll Fabrication of fully printed Organic Photovoltaics (OPVs)**

OET specializes in the manufacturing of Flexible and Printed Organic Photovoltaics (OPVs), a 3rd generation solar technology that meets the rising global energy demand. Our OPV panels are produced using fast and cost-effective Roll-to-Roll (R2R) printing technology, offering

lightweight, flexible, and translucent features. With a focus on quality and innovation, we implement real-time quality control through robust, non-destructive inline metrology, optimizing key layer properties for device quality, performance, and process reliability.

OPVs provide unique advantages for power generation in commercial and industrial projects seeking "Green" energy solutions. They efficiently convert energy from all light sources, not just the sun, and adapt to curved or flat surfaces. OET's latest generation of flexible printed OPVs combines high efficiency, stability, conformability, semitransparency, and simple installation at a low cost. These OPVs allow over 35% light transmission while cutting off the UV spectrum, making them ideal for applications requiring shading, semitransparency, and solar power generation. In the context of sustainable and renewable energy sources, OET's OPVs contribute to a "green" economy. Our solutions align with evolving policies and frameworks, driving the transition to cleaner energy production. With our commitment to zero-defect manufacturing, we minimize material waste, increase yield, and ensure product quality.

**11:30 Peter Greaves**, Offshore Renewable Energy Catapult, UK (*Guest speaker- online*)

**Title: Simulation of a Novel Segmented Wind Turbine Blade Demonstrator**

This presentation will describe the methodology used to develop the design of the 6m demonstrator blade for the Carbo4Power project, covering initial design and modelling approach used in ANSYS APDL and ANSYS ACP.

**12:00 Lunch and Networking**

Online exhibition ([www.nanoMECommons.net/EXPO](http://www.nanoMECommons.net/EXPO))

**13:00 Yves-Matthieu Le Vaillant**, Nelumbo Digital, France (*Guest speaker*)

**Title: Strainoscope: a new device for in-situ spectrometric characterisation of micro/nano-structures under extreme tensile strain.**

The main physical properties of semiconductor and perovskite materials can be amply adjusted by application of elastic strain. Strain can even lead to new material functionalities by reshaping electronic band structures. Carrier mobility and energy transition, among other physical parameters, can be tuned to a large extent with externally applied strain. Strain is currently applied to thin layers by epitaxy or to local structures by MEMS based mechanical techniques. However, straining thick semiconductor membranes (micrometre scale) over large surfaces (square millimetre area) represents a long-fought and still unmet challenge. This work proposes the Strainoscope<sup>TM</sup>: a device and an analytical description to strain macroscopic membranes at macroscopic scale in a reversible and controlled way, up to unprecedented values (2.1% biaxial). The originality of this technique is to base the deformation of stiff crystalline materials on the squashing of incompressible silicone rubber. Our set-up, very easy to implement for probing any kind of materials (even beyond crystals) under membrane geometry, gives access, aside from micro-Raman scattering and x-ray diffraction used in our study, to a large variety of in-situ spectroscopic techniques. These findings may open a new way for exploring strain physics with a fantastic potential in materials science and technology

**13:30 Spyros Kassavetis**, Nanotechnology Lab LTFN, Aristotle University of Thessaloniki, Greece (*online*)

**Title: The Nanotechnology Lab LTFN: A multidisciplinary Research Center for Organic electronics and Innovative Nanotechnology Solutions**

The Nanotechnology Lab LTFN is a multidisciplinary research center that combines expertise in materials science, engineering, physics, and chemistry to develop innovative solutions for various applications in nanotechnology. Its cutting-edge research and collaborations with industry partners have led to numerous patents, publications, and successful commercial products, making it a leader in the field of nanotechnology and organic electronics.

The role of LTFN/AUTH in the nanoMECommons include the fabrication of Organic Electronic nanomaterials and devices (such as Organic Photovoltaics, Organic Light Emitting Diodes, etc), and the development of multi-technique characterization protocols combining nanomechanical testing, surface and optical spectroscopy techniques for flexible printed OE devices.

**14:00** **Bojan Boskovic**, Cambridge Nanomaterials Technology Ltd (CNT), UK

**Title: Innovation Management Strategy in materials characterisation**

**14:30** *Discussion*

**15:00** End of session

**Note** It is planned that all presentations would be followed by Q&A discussion. The organisers reserve the right to change the programme or speakers should circumstances require. For any further enquires please do not hesitate to contact directly the **nanoMECommons Open Day 2023** organiser Dr Bojan Boskovic from Cambridge Nanomaterials Technology Ltd on [info@nanomecommons.eu](mailto:info@nanomecommons.eu)

## nanoMECommons Open Day 2023 Workshop – Speakers

Dr Davide Di Stefano (*Project Partner & Organiser*)

**Ansys UK**

97 Jubilee Avenue,  
Milton Park, Abingdon,  
England, OX14 4RW

**Dr Davide Di Stefano** is a Senior R&D Project Manager at Ansys. He focuses on research projects related to Integrated Computational Materials Engineering (ICME) and material Informatics. Davide holds a PhD in physics and has extensive experience in computational material science and atomistic and mesoscale materials modelling and informatics, having worked on applications across various industries.



Dr David MERCIER (*Project Partner & Organiser*)

Sr Development Manager for Education and Research

**Ansys Inc**

Immeuble le Patio,  
35-37 Rue Louis Guérin,  
69100 Villeurbanne, France

Since 2020, **Dr David MERCIER** has been part of Ansys - Office of the CTO (CR&D Team) and more recently leading European funded projects as a Senior Project Manager. He holds a MSc and PhD in material science and engineering from the University of Grenoble (France) and his technical background is mainly related to thin films and coatings used in microelectronic and in metallurgy. He was involved in several successful postdoctoral research projects in Germany and Belgium for 6 years, particularly in the field of multiscale modelling and characterization of mechanical properties of materials using nanoindentation technique.



Dr Bojan Boskovic (*Project Partner & Organiser*)  
CEO,  
**Cambridge Nanomaterials Technology**  
14 Orchard Way  
Lower Cambourne  
Cambridge CB23 5BN - UK

**Dr Bojan Boskovic** is the Founder, Managing Director, and Principal Consultant of the company. He has more than 20 years of hands-on experience with carbon nanomaterials and composites from industry and academia in the UK and Europe. Previously, he worked as a R&D Manager at Nanocyl, one of leading carbon nanotube manufacturing companies in Europe. He also worked on carbon nanotube synthesis and applications as a Principal Engineer-Carbon Scientist at Meggitt Aircraft Braking Systems, as a Research Associate at the University of Cambridge, and as a Senior Specialist at Morgan Advanced Materials. During his PhD studies at the University of Surrey he invented low temperature synthesis method for production of carbon nanomaterials that has been used as a foundation patent for the start-up company Surrey Nanosystems. He was a member of the Steering and Review Group for the Mini-IGT in Nanotechnology that advised the UK Government on the first nanotechnology strategy policy document. Dr Boskovic was working as an advisor for the European Commission (EC) on Engineering and Upscaling Clustering and on setting up of the European Pilot Production Network (EPPN) and European Materials Characterisation Cluster (EMCC). He has experience in exploitation and dissemination management on a number of FP7 and H2020 European projects, including UltraWire, NanoLeap, OYSTER, M3DLoC, Genesis and nTRACK. Also in UK Government InnovateUK funded projects, such as UltraMAT and GRAPHOSITE He is also a leader of two private membership based consortiums: Nano-Carbon Enhanced Materials (NCEM) and Advanced Materials for Additive Manufacturing (AMAM).



Prof. Costas A. Charitidis (*Project Coordination -online*)  
School of Chemical Engineering NTUA  
Department of Materials Science and Engineering  
**National Technical University of Athens,**  
Greece

**Constantinos Charitidis** is Professor in the School of Chemical Engineering of the National Technical University of Athens and Director of the Laboratory of Advanced, Composite, Nano Materials & Nanotechnology. He is member of the Scientific Council of the Hellenic Foundation for Research and Innovation (ELIDEK). He has been elected in the Deanship of the School of Chemical Engineering of NTUA since 2017. He is one of the founding (in 2014) and organizational members of EMCC and joined (in 2020) the OMB of EMMC and recently elected as co-chair representative of the Organisational Assembly. From 2010 to 2016 he has been Director of Section III: Materials Science & Engineering of the School, while from 2011 he is Director of the Interdisciplinary Postgraduate (MSc) Program: Materials Science & Technology (NTUA). He has more than 25 years of experience in the fields of Materials Science & Nanotechnology, Carbon-based materials and Safety impacts of Nanotechnology. He has extensive R&D experience through collaborations with international research centers since he has participated in more than 60 European and National funded projects, in many of them as Scientific Coordinator (most recent are: Nanotechnologies, Advanced Materials, Advanced Manufacturing and Processing, Resource Efficient Economy with a Sustainable Supply of Raw Materials NMP FP7, Horizon 2020). He is a referee in International scientific journals, evaluator & scientific advisor of R&D projects. He is in the Editorial Board Member of the Manufacturing Reviews Journal and author of several scientific books, chapters in international text books and more than 400 scientific publications in peer reviewed international journals and conference proceedings and cited ~6800 by other researchers (h-index 44).



Georgios Konstantopoulos (*Project Coordination- online*)  
School of Chemical Engineering NTUA  
Department of Materials Science and Engineering  
**National Technical University of Athens,**  
Greece

**Georgios Konstantopoulos** has obtained his MSc. in Chemical Engineering at National Technical University of Athens. In 2017 he acquired his diploma in Chemical Engineering with grade of 7.69, while by the beginning of 2015 he is involved in the research activities of NTUA and RNanolab. With over 8 years of working experience his accomplishments include, the development of polymeric fibers (wet-, dry-, melt- spinning) and thermal conversion to carbon fibers, the engineering and characterization of functionalized fiber surfaces and enhanced fiber-matrix adhesion performance, the production of carbon nanotubes, graphene, and reinforced multifunctional composites, as well as the development of innovative characterization protocols with emphasis to nanoindentation, and automation of analysis by using machine learning routines. He has published so far 14 papers in peer review journals and has an h-index equal to 8. Except from technical skills, he is involved in the coordination of EC funded horizon project “NanoMECommons”. He is also an assistant Editor in Manufacturing review Journal, organisational member in European Materials Modelling Council (EMMC), and in 2023 he is acting as General Secretary in European Materials Characterisation Council (EMCC).



Luca Belforte (*Project Partner online*)  
STELLANTIS Materials Engineering –  
**Centro Ricerche FIAT (CRF)**  
Strada Torino 50,  
10043 Orbassano  
Italy

**Luca Belforte (male)**, Dr. General Physics, University of Torino, 2003. He currently works at Centro Ricerche FIAT (CRF) in the Materials Engineering division as Head of Physical and Chemical Analysis department. He is experienced in microscopy and surface characterization. He was the scientific responsible for CRF of H2020, FP7 and FP6 European funded projects: E-STARS, NANOPRIM, TERASEL, SMARTONICS, NANOBAT, NANOMECOMMONS.



Dr Alexandra Simperler (*Project Partner*)  
**Goldbeck Consulting Ltd**  
UK

**Alexandra Simperler** received her Ph.D. in Chemistry from University of Vienna in 1999 and has held positions related to materials modelling in academia and industry. As a free-lance consultant she is involved in a range of Goldbeck Consulting Services and in dissemination, exploitation, training, benefits analysis, and business-related aspects of EU H2020 projects.



Yoav Nahshon (*Project Partner online*)  
**Fraunhofer IWM**  
Germany

**Mr. Yoav Nahshon** (male) has received his M.Sc. degree in Computer Science from the Technion - Israel Institute of Technology. As a member of the Data and Knowledge Lab, his main focus of study was databases and Information Extraction.

In February 2019 he joined Fraunhofer IWM to partake in the emerging field of Materials Informatics and currently leads the team "Software Solutions in Materials Informatics" whose activities aim prompting interoperability and the FAIR data principles in German and European projects.



Dr Elias Koumoulos (*Project Partner online*)  
**IRES**  
Belgium

**Dr. Elias Koumoulos**, CEO in IRES, holds a BSc in Chemical Engineering followed by MSc in Materials Science and Technology and PhD in nanomechanics. To date, he has the authorship of over 100 published papers in ISI journals. In 2015, he founded IRES in order to support both academia and industry over the whole TRL range, to decide on manufacturing, materials research and product design phases for benefit, according to environmental, social, safety and cost aspects in a multiparametric manner.



Evangelia Karaxi (*Project Partner online*)  
**CONIFY**  
Greece

**Evangelia Karaxi** is Mining and Metallurgical Engineer, with MSc in Materials Science and Engineering. Her PhD thesis was focused on the development and characterization of anti-corrosion coatings based on hybrid core-shell sub-micron materials with self-responsive functionalities. She has an 8-year experience in R&D within EU-funded projects, participating with technical/scientific and managerial liabilities. Recently, she is active in the field of metal Additive Manufacturing from the position of Managing Director of CONIFY, a start-up company based in Greece.



Salim Fachouri (*Project Partner online*)  
**Organic Electronic Technologies (OET) P.C**  
Greece

**Salim Fachouri** is OET's COO, a Physicist with MSc in Nanosciences & Nanotechnologies. He has participated in National and European R&D projects related to the development and the optical

characterization of organic electronics with novel materials and processes, their innovative applications, and their integration within IoT platforms.



Ferry Kienberger (*Project Partner online*)  
**Keysight Technologies Austria GmbH**  
Austria

**Ferry Kienberger** is Keysight Austria Country Manager and Keysight Labs Group leader on battery research since 2015. Prior to this he was Scientist at Agilent Technologies from 2007 to 2015. His university education includes a PhD in Technical Physics and the Habilitation in Nanotechnology, both at JKU Linz. The scientific track record includes 140+ scientific peer reviewed publications (including Nature Publishing Group, AAAS Science, PNAS USA, and IEEE Transactions) with an H-factor 41 and 5000+ citations; he supervised 10 PhD theses. He was coordinator and lead partner in 15+ EU projects for Keysight and Agilent, 7 national projects, 2 international projects, and 3 metrology EU projects. He serves as a vice-chair for the Horizon Europe program and is a former member of the OECD business and industry advisory council.



Dr Donna Dykeman (*Project Partner*)  
R&D Manager, Collaborative R&D  
**Ansys UK**  
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Milton Park, Abingdon,  
England, OX14 4RW

**Dr Donna Dykeman** is the R&D Manager for the Collaborative R&D Team at the Materials Business Unit, Cambridge UK, Ansys UK, and has worked in the area of materials information management for ten years. Prior to joining Ansys, Donna performed research in materials and process characterization related to polymers and composites manufacturing. She has a BSc and MSc in Mechanical Engineering and PhD in Materials Engineering.



Dr Ennio Tito Capria (*Project Partner*)  
**European Synchrotron (ESRF),**  
France

**Dr Ennio Tito Capria** is the Deputy Head of Business Development at the ESRF. In his research career he worked on the development of electrochemical nanobiosensors, nanocomposites and optoelectronic devices and particularly their characterisation with synchrotron light. At the ESRF, he is coordinating the participation of the ESRF in various collaborative initiative with industry, in particular on energy storage applications, additive manufacturing methods and nano-sciences. Since 2020 Ennio is Director of the Characterisation programme of the Technological Research Institute Nanoelec.



Dr Amit Bhave (*Guest speaker*)  
CEO and co-founder of  
**CMCL**  
Sheraton House  
Castle Park, Castle Street  
Cambridge, Cambridgeshire  
CB3 0AX, UK

**Dr Amit Bhave** is the CEO and co-founder of CMCL, an award-winning company offering digital engineering solutions across energy, infrastructure, automotive, and materials sectors. His main responsibilities include digitalisation services business development, and for over a decade, he has also been responsible for fostering R&D partnerships with industry and research organisations worldwide. Amit is the Coordinator for DOME 4.0, a European collaborative project on industrial B2B data-sharing marketplace ecosystem. CMCL has recently delivered the technical implementation of CReDo, the Climate Resilience Demonstrator. CReDo is a climate adaptation connected digital twin that leverages data sharing across the telecoms, power and water networks for data-centric climate resilience support. Amit has over 50 peer-reviewed technical publications in areas such as smart infrastructure, digital twins, low-emission vehicles, nanomaterials and carbon-negative energy processes. He is a Chemical Engineer (PhD, University of Cambridge) and is also a By-Fellow at Hughes Hall, Cambridge.



Saqib Rashid (*Project Partner online*)  
Post-doctoral researcher  
**Università degli Studi Roma Tre**  
Via Della Vasca Navale 79,  
00146 Roma  
ITALY

**SAQIB RASHID** is working as post-doctoral researcher after completing his PhD in Mechanical and Industrial Engineering.



Peter Greaves (*Guest speaker - online*)  
Principal R&D Engineer.  
**Offshore Renewable Energy Catapult**  
UK

**Peter Greaves** is the Principal R&D Engineer (Blade Structures) working in the Research Technical Capability directorate at the Offshore Renewable Energy Catapult. His doctoral studies at Durham University were focused on bi-axial fatigue testing of wind turbine blades, and he continues to be heavily involved with blade testing at ORE Catapult. His research interests are mainly on structural simulations of blades and blade testing.



Yves-Matthieu Le Vaillant (*Guest speaker - online*)  
**Nelumbo Digital SAS**  
143 rue du Brocey  
38920 Crolles  
France

**Dr Yves-Matthieu LE VAILLANT** is founder and CEO of NELUMBO DIGITAL, an engineering company specialising in semiconductor transformation of semiconductor materials through crystal deformation. NELUMBO DIGITAL is involved into a long-term partnership with the European Synchrotron (ESRF).



And for this Open Days event, NELUMBO DIGITAL will represent the ESRF, member of the nanoMECommons consortium, as an official subcontractor during this project.



Spyros Kassavetis (*Project Partner online*)  
**Nanotechnology Lab LTFN,**  
**Aristotle University of Thessaloniki**  
Greece

**Dr. Kassavetis Spyros** is head of the Micro/NanoFabrication Group of the Nanotechnology Lab LTFN. His main scientific and research interests include thin films technologies and laser-based surface processes for the development of functional nanomaterials and surfaces for applications in optoelectronic devices for solar energy harvesting, lighting, plasmonics and photonics. He is also an expert in light-matter interactions and optical, surface and nanomechanical (Nanoindentation and Scanning Probe Microscopy) characterization of thin films and nanomaterials. He has authored and co-authored 55 papers in international peer review journals with more than 2000 citations (current h-index=21). He is member of the organizing committee of the International Conference on Nanosciences & Nanotechnologies, in which he co-chairs the Workshop 1: Nanoelectronics, Photonics, Plasmonics & Nanoenergy.

## nanoMECommons Partners

### National Technical University of Athens – NTUA

Web: [www.nanolab.chemeng.ntua.gr](http://www.nanolab.chemeng.ntua.gr)



**National Technical University of Athens (NTUA)** ational Technical University of Athens (NTUA) was founded in 1836 and is the oldest and most prestigious educational institution of Greece in the field of technology. Part of the NTUA School of Chemical Engineering (Department of Materials Science and Engineering) is the Research Unit of Advanced, Composite, Nano Materials & Nanotechnology (R-NanoLab), which was founded in 2007. **R-NanoLab** has extensive experience in Designing, Production, and Characterization of Advanced-, Composite- and Nano- Materials, specializing in the development of nanomaterials and (nano-)composites with tailored properties, and upscaling those processes using pilot lines. Furthermore, R-Nanolab is also involved in advanced materials characterisation including the development of tailored protocols for testing in nanoscale with nanoindentation. Cross-validation of characterization data is performed to adapt the relevant protocols to materials specific test cases, while Machine Learning is also used to support materials characterization activities and i) establish structure-property relations, ii) support phase recognition, iii) perform failure prognosis, as well as iv) to provide implications for materials design and optimization. R-NanoLab has a strong presence in European Research Activities in Materials Science, through participation in numerous EU and national funded projects. As part of the European Technological Community, R-NanoLab is an active member of several Clusters (e.g. EMCC, EMMC, EPPN, NSC) taking part in the establishment of new standard methodologies, provide a suitable background for regulation and nanosafety, and support EC policy development.

### UniRomaTre

Web: [www.stm.uniroma3.it/](http://www.stm.uniroma3.it/)



The **Università degli Studi "Roma Tre" (Roma Tre University)** has been established in 1991 and actually represents a central point of reference in the academic scenario at both local and national level hosting nearly 40000 students. The University has 12 Departments, 10 Libraries and 10 Centres and totals of about 970 teachers (553 professors I and II level, 353 research assistant professors and 3 language experts). Since its foundation, Roma Tre has paid a great importance to international cooperation, and it has been an active participant in the European Union exchange programmes. Particularly, Roma Tre has taken part to the Erasmus program since 1993/1994. In the academic year 2002/2003, Roma Tre was awarded the Erasmus University Charter (EUC), thus obtaining the right to participate in the Erasmus Program. Roma Tre is involved, either as coordinator or partner, in about 78 International Research projects. The activity of RM3 team will be conducted by the Materials Science and Technology (STM) group, which is part of the Engineering department of university of Roma "Roma TRE", [www.stm.uniroma3.it](http://www.stm.uniroma3.it). The STM group has a consolidated experience in the field advanced characterization of bulk materials and thin films, through the use of high-resolution microscopy, (TEM, SEM and AFM), Focused Ion Beam (FIB) microscopy, nanoindentation (four different heads available, including the novel high-speed heads), nano-scratch testing and micro-tribological,

## SINTEF



Web: [www.sintef.no/en/](http://www.sintef.no/en/)

**SINTEF** is one of the largest independent multidisciplinary research organizations in Europe having more than 2000 employees. SINTEF aims at creating value through knowledge generation, research, innovation, and development of technological solutions that are brought into practical use. As a non-commercial organization, the generated revenue through contract research is invested in new research activities, laboratories, and competence development. In addition to participating in many EU and national projects, SINTEF is also contributing to research project in other continents. Being one of the major players in Norwegian materials technology research, SINTEF develops solutions within a wide range of applications with special focus on the nationally prioritized areas: Energy, Climate and Environment, Health, Natural resources, Biotechnology and Key Enabling Technologies. SINTEF operates state-of-the-art processing, manufacturing, characterization and testing laboratories coordinates and participates in numerous national and EU research and innovation, as well as e-infrastructure investment projects and is a central partner in establishing national infrastructures in Norway. Typical examples are: The Norwegian Centre for Transmission Electron Microscopy-NORTEM (<https://nortem.no>), the National Surface and Interface Analysis Laboratory-NICE ([www.nicesurface.no](http://www.nicesurface.no)), The Norwegian Micro- and Nano-Fabrication Facility-NORFAB ([www.norfab.no](http://www.norfab.no)), the Norwegian Laboratory for Minerals and Materials Characterization-MiMAC ([www.ntnu.edu/mimac/home](http://www.ntnu.edu/mimac/home)), and the Norwegian Advanced Manufacturing laboratories (<https://manulab.org>). Several research groups at SINTEF will participate in NanoMECommons with unique specializations in advanced characterization using SEM, (S)TEM and associated techniques HAADF, EDS, EBSD, GPA as well as in-situ tensile testing, and upon request pico-indentation, surface analysis with AFM, WLI, XPS, ToF-SIMS and numerical modelling ([see advanced characterisation at SINTEF](#)).

## Aristotle University of Thessaloniki (AUTH)– Greece

Web: [www.ltfn.gr](http://www.ltfn.gr)



The **Nanotechnology Lab LTFN, Aristotle University of Thessaloniki** is an internationally acknowledged specialist in Organic Electronics (OPVs, OLEDs, OTFTs, biosensors, etc), Plasmonics, Nanomedicine & Nanobiotechnology, Thin Film Technology & Nanoengineering, Real-time/In-line Optical Technology and Nanometrology, real-time/in-line precision Metrology, Computational & Modelling at nano to microscale, Automation and Digital Manufacturing.

The LTFN established the Center of Organic & Printed Electronics - Hellas (COPE-H), for cutting-edge Research and Manufacturing of OE Devices for applications in Energy, Displays, Lighting, Electronics, Automotive, NanoBiomedicine, Smart Textiles and Wearables, IoT, Smart Food Packaging, Greenhouses, etc. The COPE-H facilities include a Lab space area of 2000 m<sup>2</sup>, with clean room facilities of 600 m<sup>2</sup> and state-of-the-art equipment and facilities, 10 Pilot to Production Lines (R2R printing, OVPD, CVD, S2S) for the manufacturing of large area OE devices and products. Also, it has unique TestBed facilities, combined with strong activity in R&D Projects and dynamic collaborations with SMEs, industry and academia. LTFN is a Digital Innovation Hub, offering open access to interested entities (Academia, Research, SMEs, Industries), while serving as an One-Stop-Shop for SMEs for technology transfer, proof-of-concept and incubation.

## Montanuniversität Leoben - Austria

Web: [www.unileoben.ac.at](http://www.unileoben.ac.at)



**Department of Materials Science (DMS)** of the **MUL** is a world-wide recognized scientific institution in the field of synthesis and characterization of advanced functional nanostructured materials with more than 25 years of experience in the field and 150+ researchers (including technicians and administration staff). At the DMS, 100+ projects were funded within the last 5 years including Christian Doppler Laboratories, EU FP7 projects and national grants. Additionally, several Horizon 2020 projects including ERC starting, consolidator and advanced grants are running at the DMS. DMS provides a high-level infrastructure for **characterization** of structurally complex nanostructured materials including facilities for material **synthesis**. The unique combination of advanced synthesis and characterization methods in one place allows for development of nanostructured thin films with highly defined microstructure and properties, which are based on established fundamental processing-structure-property relations and thus suitable as reference samples for a variety of applications.

## Agencia Estatal Consejo Superior de Investigaciones Científicas (CSIC)

Web: [www.csic.es](http://www.csic.es)



The **CSIC (Spanish National Research Council)** is Spain's largest public research institution, and ranks third among Europe's largest research organization. The CSIC is attached to the Spanish Ministry of Science and Innovation, and plays a key role in scientific and technological policy in Spain and worldwide. As the third largest research organization in Europe, CSIC carries out research in all fields of knowledge, throughout its 123 Institutes distributed in three Global Areas: Life, Society and Materia.

Participation of CSIC in NanoMECommons runs through 2 research groups that belong to different Institutes: The Spectroscopy & Industrial Catalysis group, SpelCat (Instituto de Catálisis y Petroleoquímica, ICP-CSIC, <http://www.icp.csic.es>) and the Ceramics for Smart Systems group, CSS (Instituto de Cerámica y Vidrio, ICV-CSIC, <http://www.icv.csic.es/>).

## Innovation in Research and Engineering Solutions - IRES



Web: [www.innovation-res.eu](http://www.innovation-res.eu)

**IRES**, founded in 2015, is devoted to provide decision making tools and methodologies for environmental, safety and risk assessment, materials characterization/digitization and process optimization. We are a team of chemical engineers, physicists, materials and data scientists with a mission to deliver world-class innovative solutions. Customized and tailored solutions on demand, often in tool form, successfully identify possible business risks and provide sustainable directions. For this, the whole lifecycle of products is considered, through a holistic evaluation of social, environmental and economic aspects based on EU standards and regulations. In collaboration with external bodies and related initiatives, IRES is part of, build upon and push the frontiers at new technological events, arising innovative technologies and strategic research trends.

## Fraunhofer (IWM).



Web: [www.iwm.fraunhofer.de](http://www.iwm.fraunhofer.de)

The **Fraunhofer Institute for Mechanics of Materials - IWM** (located in Freiburg; [www.iwm.fraunhofer.de](http://www.iwm.fraunhofer.de)) is a leading research centre in the modelling and experimental and theoretical characterization of material properties. The objective of Fraunhofer IWM is to develop solutions that improve the safety, reliability, durability and functionality of materials, technical components and systems, thus making them more cost effective and energy-efficient. The combination of experimental characterization, computational simulation and multiscale modelling is a primary focus of the institute. Lately, the Fraunhofer IWM took a leading role in the digitization of materials, i. e. making data and models available and interoperable for advanced analytics and sustainable long-term accessibility. Fraunhofer IWM seeks for a common agreement on community-based ontologies for materials modelling and characterization and is heavily engaged in the European Materials Modelling Council (EMMC) and the European Materials Characterization Council (EMCC).

## Goldbeck Consulting Ltd. (GCL)



Web: <https://materialsmodelling.com>

**Goldbeck Consulting Limited (GCL)** is an SME based in Cambridge, United Kingdom, providing business and technical consulting services in the field of materials modelling, informatics and digitalisation to universities, science and engineering software companies, manufacturing industry and public bodies. Services include strategies for integration and increased impact of materials modelling and informatics in industry, materials modelling translation as well as coaching for industrial staff and commercialisation and business development for science and engineering software.

## European Synchrotron Radiation Facility - ESRF



Web: <https://www.esrf.eu/>

The ESRF is the world's most intense X-ray source and a centre of excellence for fundamental and innovation-driven research in condensed and living matter science. Located in Grenoble, France, the ESRF owes its success to the international cooperation of 22 partner nations, of which 13 are Members and 9 are Associates

## Cambridge Nanomaterials Technology Ltd



Web: [www.cnt-ltd.co.uk](http://www.cnt-ltd.co.uk)

**Cambridge Nanomaterials Technology Ltd (CNT)** is an innovation management and nanotechnology consulting company based in Cambridge, UK. The CNT Ltd helps companies, academic and government institutions to develop world-class innovative solutions for nanomaterials related R&D and IPR strategy, partnership, products, technologies, funding and markets. **CNT Ltd** is specialised in carbon nanomaterials R&D consulting and collaborative R&D project management, including exploitation and dissemination management, consortium and supply chain building. **CNT** has done a number of patent landscaping and market research analysis studies regarding production and use of various nanomaterials helping to link inventors and technology developers with end-users and investors. CNT is leading private Nano-Carbon Enhanced Materials (NCEM) consortium with members from leading industrial organisations and academic institutions. Based on a similar concept, CNT started a new private consortium Advanced Materials for Additive Manufacturing (AMAM) in November 2018. In March 2019 CNT has opened a sister company CNT Innovation based in Brussels, Belgium (<http://www.cnt-innovation.com/>).

## Ansys Ltd,



Web: [www.ansys.com/products/materials](http://www.ansys.com/products/materials)

**Ansys Inc. Materials Business Unit** has a core business for design and development of software products related to materials information management, data, and tools (eco-design, restricted substances, critical materials assessment, materials selection and substitution), several of which integrate with CAD/CAE/PLM. Granta contributes to networks and standardization bodies and supports a number of industry standard commercial databases for materials such as metals, composites, polymers, and medical devices. Granta also produces and maintains several leading data products including Materials Universe (a database of over 4,000 commercially available engineering materials including technical, ecological and cost attributes for each material and its associated processes) and the Product Risk database which incorporates one of the leading resources on restricted substances as well as critical and conflict minerals risks and data needed for streamlined life cycle analysis. Granta supports numerous collaborative projects by providing a centralized materials information management system for the project to enable the pooling and consolidation of project knowledge which would otherwise be dispersed amongst the partners, this approach enables standardization and capitalizes on the value in the project by avoiding duplication of effort and maximizing results visibility to partners and external stakeholders. Granta also has reach to over 1000 educational institutes world-wide via its education software, GRANTA EduPack, which translates materials research into data, information and teaching resources. The recent acquisition by ANSYS Inc. means that our materials and process data, software tools, and learning resources can reach an even greater audience for higher impact of collaborative project outcomes.

## Keysight Technologies GMBH



Web: <https://www.keysight.com/zz/en/home.html>

**Keysight Technologies (Keysight)** is the world's premier electronic measurement company with 13,500+ employees which generated revenues of \$4.2B in fiscal year 2020. Keysight delivers advanced design and validation solutions that help accelerate innovation to connect and secure the world. Keysight's dedication to speed and precision extends to software-driven insights and analytics that bring

tomorrow's technology products to market faster across the development lifecycle, in design simulation, prototype validation, automated software testing, manufacturing analysis, and network performance optimization and visibility in enterprise, service provider and cloud environments. Our customers span the worldwide communications and industrial ecosystems, aerospace and defense, automotive, energy, semiconductor and general electronics. Keysight offers a portfolio of different electronic measurement equipment, calibration devices, software packages, and data analytics, including high speed oscilloscopes and performance network analysers (PNA) that are in many aspects leading the edge on performance, speed, and sensitivity in the broad frequency spectrum. Recently, Keysight extended the automotive and battery division by adding automotive battery test systems on top of power supplies and source measurement units SMUs. Keysight aims to lead software and hardware development in energy storage and battery quality test via combined hardware and software algorithms for battery quality control, products and services to gigafactories. Hereby, Keysight is working on the development of impedance calibration and high-throughput measurements, as well as the battery self-discharge methodology that improves cell production efficiency significantly.

## Thales Research & Technology

Web: [www.thalesgroup.com](http://www.thalesgroup.com)



**Thales Research & Technology's** mission is to provide short-term and long-term competitive advantage to the THALES Group by transferring leading edge knowledge by injecting innovation. THALES Research & Technology-France, located in Palaiseau near Paris, is the main multidisciplinary research unit of the THALES Group, one of the major world players in aerospace, space, defence, and security. Through its internal activities and scientific links with industries and universities, either in France or internationally, THALES is participating in the preparation of THALES industrial future in strategic R&D fields. In addition to R&D activities, TRT-Fr provides scientific and technical advice, expertise or services for the company.

## Centro Ricerche FIAT S.C.p.A.

Web: [www.crf.it](http://www.crf.it)



**Centro Ricerche FIAT (CRF)** is an industrial organization having the mission to promote, develop and transfer innovation for providing competitiveness to FCA. With a full-time workforce of more than 850 highly trained professionals, CRF fulfills his task by focusing on the development of innovative products & materials, implementation of innovative processes development of new methodologies and training of human resources. To properly cover a very wide technological spectrum, CRF developed a global network with national and international institutes; private and public research organizations, universities and companies, through the promotion of common research activities, associations, conferences and seminars and researcher's mobility. This network further strengthens the center's global innovation strategies, the implementation of specific activities locally, creation of know-how and continuous monitoring to enhance competitiveness and further development in areas such as transportation vehicles and components, innovative materials and application technologies, as well as the work on innovative alternative propulsion systems and transmissions. CRF is organized in 4 technical divisions: Process Research, Vehicle and Body, Powertrain and Group Materials Labs.

## Organic Electronic Technologies (OET)

Web: <https://oe-technologies.com>



**Organic Electronic Technologies (OET)** is a world leader in R2R manufacturing and technologies for flexible Organic Electronics (OEs) and holds more than 25 years' experience in thin film technologies. OET develops and manufactures large-scale Organic Photovoltaics with exceptional R2R printing processes enabled by unique laser patterning processes and in-situ characterization methods. OET develops custom R2R printing systems and in-line optical metrology tools and methodologies in collaboration with LTFN-AUTH for the real-time monitoring of the nanolayer properties.

## BASF

Web: [www.basf.com](http://www.basf.com)



**BASF** is one of the major chemical companies. The materials produced by BASF are used in almost all industry segments. BASF is the biggest polymer material and chemicals provider to the automotive industry. Other relevant segments are electronic materials (e.g. for semiconductors, display, etc.) , aerospace, packaging, construction etc.. BASF is besides a leading cathode active material supplier to battery producers for electrified vehicles around the world.

## CONIFY Powder

Web: <https://conify.gr/>



**CONIFY** is a start-up company with strong metallurgical expertise for the optimization of AM-compatible powder performance to obtain the best possible material / process pairs for the final application. Conify's main activities involve the revitalization, upcycling and recycling of unfused/low-cost powders, towards high-quality AM-grade powders where production chain from 3d printing and post-processing wastes is linked to design and manufacturing. Driven by its metallurgical background and expertise Conify focuses also on the development of new alloy compositions for AM based on novel metal alloy design approaches for custom powder prototyping supported by printability testing. Through parametric studies for process optimization, Conify aims to achieve print-tested, validated powdered materials verified to deliver stress-relieved, geometry- and composition-correct, homogeneous deposited materials that will enable production of higher quality parts.

## MESA Consult



The main activity offered by **MESA** is consultancy services in the fields of Research and Development (R&D), Chemistry, Surface Chemistry, Materials Science, and Nanocomposites and Nanoparticles. With a broad experience in innovative solutions, MESA addresses clients' needs related to a variety of materials such as polymers, metals and metal alloys, ceramics, composites from nano to micro level in a wide range of sectors including aeronautic, automotive, building, microelectronic, biomedical and packaging. MESA proposes a scientific assistance to industrial partners to place their innovative products on the market by reducing technical and operational risks. MESA provides support for R&D projects management, grant advice, writing proposal and project implementation.

## nanoMECommons Open Day 2023 Workshop – Guest participating projects

### NanoPAT project

Web: [www.nanopat.eu](http://www.nanopat.eu)



Nano-scaled materials are abundant in different stages of industrial manufacturing. Physical and chemical properties of these materials are strongly dependent on their size. Characterisation of mean size, size distribution, and shape of nano-scaled particles is very critical for the quality and efficiency of manufacturing processes. Yet, conventional characterisation technologies still show manifold shortcomings which represent a major innovation obstacle for manufacturers of nanoparticles.

The NanoPAT consortium aims at closing this gap by the demonstration of 3 novel, real-time nano-characterisation Process Analytical Technologies (PAT), namely Photon Density Wave spectroscopy (PDW), OptoFluidic force induction (OF2i) and Turbidity Spectrometry (TUS) including real-time data handling for digital process monitoring and product quality control.

### I-Tribomat

Web: <https://i-tribomat.eu/>



**i-TRIBOMAT** works towards establishing the world's first Open Innovation Test Bed dedicated to validating and up-scaling new materials, thereby enabling intelligent Tribological Materials Characterisation and fostering industrial innovation in European manufacturing industry.

With 10 renowned partners in this ecosystem, we will deliver state of the art solutions towards validating and up-scaling new materials.

### DOME 4.0

Web: <https://dome40.eu/>



The **Digital Open Marketplace Ecosystem (DOME) 4.0** offers an industrial data marketplace ecosystem based on Open Science and Open Innovation principles to enable sharing of business-to-business (B2B) data and creation of new or enhanced products, processes and services.

The multi-sided ecosystem DOME 4.0 will be open to all providers as well as users of data and aims to facilitate maximum knowledge extraction with the help of ontology-based semantic data interoperability and modern data processing technologies.



## nanoMECommons Open Day 2023 Workshop – External Participating organisations

### ORE Catapult

Web: <https://ore.catapult.org.uk/>



**ORE Catapult** ORE Catapult is an RTO which aims to deliver the UK's largest clean growth opportunity by accelerating the creation and growth of UK companies in offshore renewable energy. Our unique turbine testing facilities, research and engineering capabilities bring together industry and academia and drive innovation to help the UK. ORE Catapult currently has just over 320 employees.

### Northumbria University

Web: [www.northumbria.ac.uk](http://www.northumbria.ac.uk)



**Northumbria University** is based in the heart of Newcastle upon Tyne, which is regularly voted the best place in the UK for students, and has campuses in London and Amsterdam.

The University has its origins in the Rutherford College, founded in 1880. Today, by putting students at the heart of an outstanding experience, and with world leading research and award-winning partnerships, Northumbria is a challenger institution, transforming to take on tomorrow.

Northumbria is ranked in the top 25 in the UK for research power, according to the results of the latest Research Excellence Framework. The University is also ranked top 25 in the UK for the number of graduates entering professional employment, with nine out of ten graduates working or studying six months after graduation.

### Computational Modelling Cambridge Ltd. (CMCL)

Web: [CMCL.io](http://CMCL.io)



**Computational Modelling Cambridge Ltd. (CMCL)** develops and offers efficient, practical and cost-effective digital engineering solutions to alleviate engineering challenges in energy, automotive, chemicals and materials industries as well as smart infrastructure.

As an R&D-driven Small to Medium Enterprise (SME), CMCL provides workable solutions to its customers enabling them to simulate, design and optimise their processes/systems.

A German-based subsidiary, Computational Modelling Primasens GmbH (CMPG) was founded in 2021.

### ELODIZ Ltd

Web: [www.elodiz.com](http://www.elodiz.com)



ELODIZ Ltd focus primarily on the development of innovative Raman solutions and R&D of products in the spectroscopy sector.

We specialise in the development and manufacture of own spectroscopy products (e.g. Raman devices, calibration sources and special LED illumination sources) as well as distribution of complementary products.

Our expertise extends to regulated markets such as pharmaceuticals, GMPs, forensic/police laboratories and university research.

We pride ourselves in being a small team dedicated to providing an excellent level of service and commitment to our customers to help them succeed in their research and business activities.

## Sohag University, Faculty of Science, Physics department



Web: [https://www.sohag-univ.edu.eg/ar/?page\\_id=20049&lang=en](https://www.sohag-univ.edu.eg/ar/?page_id=20049&lang=en)

**Sohag University** is a regional university which has a general strategic aim which is covering the needs of the national and local labour market from the qualified graduates scientifically and practically.

It also aims at preparing a generation of the distinguished scientists.

Worthy mentioning is that the history of Sohag University extends from the history of the construction of the first faculty which is faculty of education in 1971.

## NELUMBO DIGITAL SAS

**Nelumbo Digital SAS** is a semiconductor materials engineering company. 8 years. Team: 4 R&D engineers. Prototyping, research and intellectual property for strained materials.

## Karlsruhe Institute of Technology (KIT)



Web: [www.kit.edu](http://www.kit.edu)

The **Karlsruhe Institute of Technology (KIT)** is “The Research University in the Helmholtz Association.” As the only German university of excellence with a national large-scale research sector, we offer our students, researchers, and employees unique learning, teaching, and working conditions. The roots of the academic education institution extend all the way back to 1825. Today’s structure of KIT is the result of the merger of the Technical University of Karlsruhe and Karlsruhe Research Center in 2009.

## Eurecat



Web: <https://eurecat.org/en/>

**Eurecat** is currently the leading Technology Centre in Catalonia, and the second largest private research organization in Southern Europe. Eurecat manages a turnover of 50M€ and 650 professionals, is involved in more than 200 R&D projects and has a customer portfolio of over 1.600 business clients. Eurecat is currently participating in more than 60 EU funded collaborative projects, mainly in the Horizon 2020 Programme. In addition to this wide experience at European level, Eurecat is also a strong player in the various R&D programmes sponsored by the Spanish and Catalan administrations. Technology transfer is also an essential activity in Eurecat, with 36 international patents and 8 technology-based companies (eight in Spain and one in Latin America) started-up from the centre.

## ANALISIS-DSC



Web: [www.analisis-dsc.com](http://www.analisis-dsc.com)

Initially, the company **ANALISIS-DSC** was created with the original idea of being a distributor of CAE programs for Spain and Portugal. Specifically, the fluid mechanics program (CFX) and auxiliary software (meshing and visualization). We frequently carried out training courses and attended fairs. Currently we no longer carry the distribution of any software, but we offer engineering and consulting services.

Over time we have specialized in mechanical and process engineering, and we have a technical department made up of highly experienced engineers. Accompanying the technical department in its high quality of results, is the commercial department making a great continuous effort. This is how we have become the reference company in the sector.

## Simmore Software Limited

Web: [www.simmore.co.uk](http://www.simmore.co.uk)

**Simmore Software Ltd.** build, maintain, operate and administer software, algorithms and websites.

## TEMAS Solutions GmbH



Web: [www.temasol.ch](http://www.temasol.ch)

At **TEMAS Solutions**, we understand that change is not always easy. With a combined experience of 80 years, we've been helping companies of all sizes respond to industry transitions in order to stay competitive.

The Chemicals Strategy for Sustainability was launched by the European Commission in 2020, it lies at the core of the European Green Deal and represents a new growth strategy for European industry. This new strategy focuses on greener chemicals, safety, sustainability, and circularity and sets the ambitious goal for Europe to become sustainable and climate neutral by 2050. TEMAS Solutions staff has been trained for the past several years on the main topics required by the Chemicals Strategy for Sustainability and currently assists companies to achieve this transition which moves Europe towards the Green Deal.

## Seven Past Nine

Web: <https://sevenpastnine.com/>

Data stewardship and solutions for life sciences. We develop data and information solutions for academic and commercial research. We are experts in designing, collecting, organising and presenting data and offer a unique combination of technical and scientific expertise to build data management solutions that don't compromise on project requirements.