

NEWSLETTER



2023 – ISSUE 2

Overview

The **NanoMECommons** is a 4-year project, led by the National Technical University of Athens (NTUA). This project is funded by the EU H2020 Research and Innovation action - RIA (Grant Agreement 952869). 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.



PARTNERS



Surface science and nanostructures, Nano-materials (production and properties), Characterization methods of materials, Nanotechnology, nano-materials, nano engineering



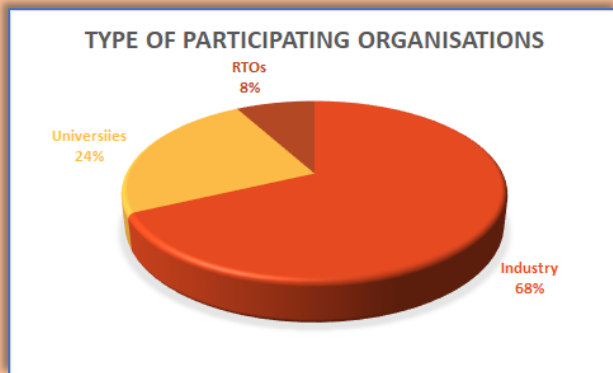
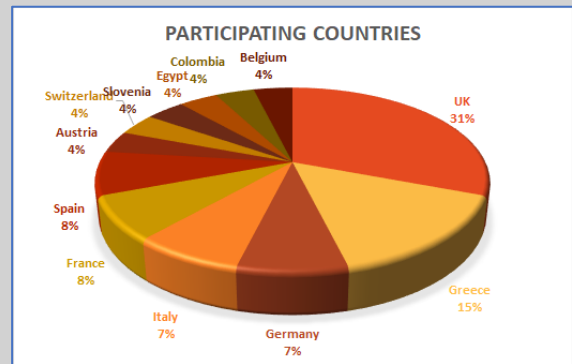
nanoMECommons Exploitation and Dissemination Open Day Workshop – 3 – 4 July 2023

The 1st NanoMECommons Exploitation and Dissemination Open Day Workshop took place on the 3 & 4 July 2023 as a *hybrid* event hosted by the project partner **Ansys UK** In **Cambridge, UK**. 40 people registered to participate in this event, from which 14 belong to external organisations. The majority of participating organisations belong to industry

Coordinators and key partners from sister projects were invited to participate in the Open Day. The guest participating projects were: **i-Tribomat**, **DOME 4.0**, **Carbo4Power** and **NANOPAT**.

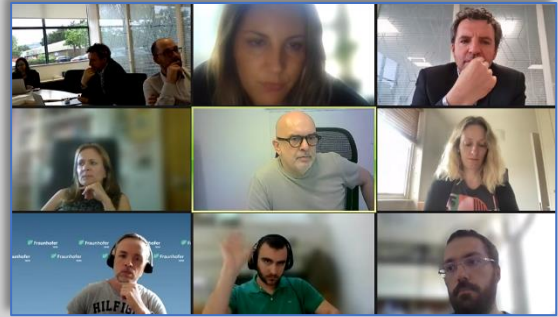


Logos of the external participating organisations



For more information on the event, please visit the [project website at this link](#).





ESRF synchrotron line tests

ESRF and NTUA carried out synchrotron line tests, at the ESRF facilities, during the end of April. Some information about the experiment is shown below:

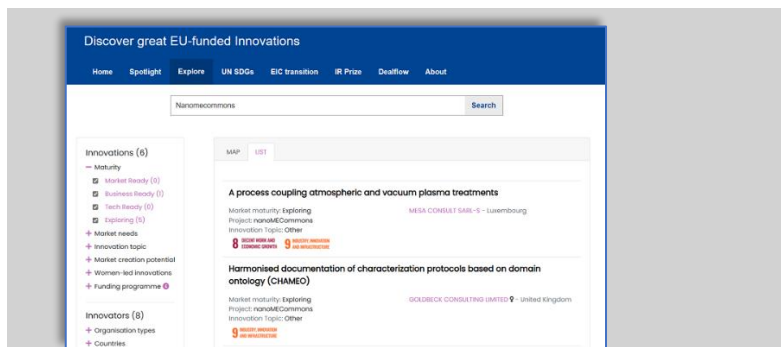
The thin film samples produced by MUL partner are consisted of Cu, Cr, Ti, W, where phases such as metallic glasses, alloys, and immiscible phases of elements are present, with a multi-granular structure. Elastic modulus and hardness mapping in the nanoscale (10-300 nm) will be studied to identify the deformation mechanics of the different metallic phases, combined by ex-situ nanodiffraction for validating phase distribution. The output will be used to establish a knowledge base for phase detection based on the nanomechanics fast-mapping, and will be used to evaluate the nanoindentation protocol parameters for the validated measurement of nanomechanical properties and materials phase identification (measurements will be validated also by comparison to standard/conventional protocols of quasistatic or dynamic nanoindentation).



Evaluation of NanoMECommons Innovations from Innovation Radar has been published

The NanoMECommons project has been evaluated by experts for the Innovation Radar, regarding the innovations in the project and its market potential. More information on the results can be seen on this link.

The Innovation Radar is a European Commission initiative to identify high potential innovations and innovators in EU-funded research and innovation projects. More information can be seen at the INNORADAR website, on [this link](#).



Participation at the ICMCTF conference – 21-26 May 2023 - USA

EMCC Session at the EuroNanoForum 2023

Michal Zitek Ing. Ph.D from Montanuniversitaet Leoben (nanoMECommons Partner), attended the ICMCTF conference with the presentation related to their work in the project. The presentation was titled: Combinatorial synthesis of novel compositionally, mechanically, and structurally heterogenous CuWCrTi alloys with unique properties - Authors: Zítek M., Rossi E., S. Rashid, Konstantopoulos G., Katsavrias T., Keckes J., Sebastiani M., C. Charitidis, Daniel R.

The International Conference on Metallurgical Coatings and Thin Films (ICMCTF) was held at the Town & Country Hotel and Convention Center, San Diego, California, USA, from May 21-26 2023.

NanoMECommons partners (NTUA, IRES, SINTEF, Goldbeck, ESRF, and RomaTre) represented the project, at the EMCC session on Advanced materials and manufacturing for a sustainable and resilient Europe, at the EuroNanoForum. This session was held on the 13 June 2023 in Lund, Sweden.



Participation in the ICEAF Conference – 21-23 June 2023

NanoMECommons project was present at the 7th International Conference of Engineering Against Failure (ICEAF), held in Spetses, Greece, on the 21-23 June.

Prof. Costas Charitidis, Partner Coordinator from NTUA, led the session: Advanced and AI-enhanced nanomechanics for materials assessment and prognostic. The presentations given by partners at this session were:

A method for the correlation of microstructure with nanomechanical properties in Advanced High Strength Steels for automotive applications (NTUA, CRF, UniRomaTre)

Phase mapping and identification of complex multiphase CuWCrTi material using Nanoindentation testing and Nanoindentation mapping (NTUA, ESRF, Montanuniversität Leoben).

Nanomechanical testing of printed nanolayers for application in –flexible organic printed electronics devices (LTFN).

Correlation between structure and mechanical properties in a-quartz single crystal by nanoindentation and Confocal Raman microscopy (CSIC, NTUA)

In the afternoon, during the session Structural Integrity and Processing Challenges of Additively Manufactured Materials, CONIFY presented their common work with SINTEF and IRES in the project. The presentation was titled: Phase-separated properties based on the multi-technique nanomechanical characterisation methodologies of ferrite and austenite in 2205 duplex and 2507 super duplex stainless steel produced via Laser Powder Bed Fusion.

Participation at the OntoCommons Second Global Workshop

Goldbeck Consulting Ltd (GCL) participated online in this event, which was held in Oslo, on the 13th June 2023. GCL presented CHAMEO Poster (OntoCommons Demonstrator). Mention of this demonstrator can be seen at [this link](#).



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