Secondment of one Postdoctoral Researcher from Conditions Extrêmes et Matériaux: Haute Température et Irradiation CEMHTI – CNRS and one Mechanical Engineer from University of Pamplona at POLITEHNICA Bucharest, Romania

Dr. Ahmed Malek Djaballah from CNRS (France) and **Associate Professor Luz Karime Hernández Gegen from University of Pamplona (Colombia)** were welcomed by the POLITEHNICA's Staff. During an extensive meeting Prof. Dr. Claudia-Maria Simonescu presented the objectives and scientific scope of the **NANOEMCA** and Prof. dr. Florina Dumitru presented the relevant scientific literature, outlined the progress achieved to date, and shared the future perspectives and planned developments of the project.

Research activitities were carried out within the scope of the **NANOEMCA** project: synthesis and characterization of Schiff base (2,6-bis((3-(triethoxysilyl)propylimino)methyl)-4-methylphenol) starting from 2-hydroxy-5-methylbenzene-1,3-dialdehyde and 3-(triethoxysilyl)propan-1-amine (1:2 molar ratio) (**WP2**). MCM-41 and MCM-41@Schiff base by template approach using the surfactant cetyltrimethylammonium bromide (CTAB) and diimine organosilica precursor was also prepared (**WP3- T3.1**). The PMOs were preliminarily characterized by FTIR spectroscopy, TG-DSC analysis, XPS, and N2 sorption isotherms (**WP3- T3.1**).

As part of the **NANOEMCA** project activities, a consortium meeting was hosted by POLITEHNICA Bucharest, bringing together representatives from academia, industry, and research institutions involved in the project. The event gathered participants from Romania, Colombia, and France, fostering interdisciplinary dialogue and international cooperation.

The meeting was led by Prof. Dr. Claudia-Maria Simonescu, who oversees the coordination of the **NANOEMCA** project. Through presentations and technical discussions, the participants reviewed project progress and outlined priorities for the upcoming research and dissemination activities.

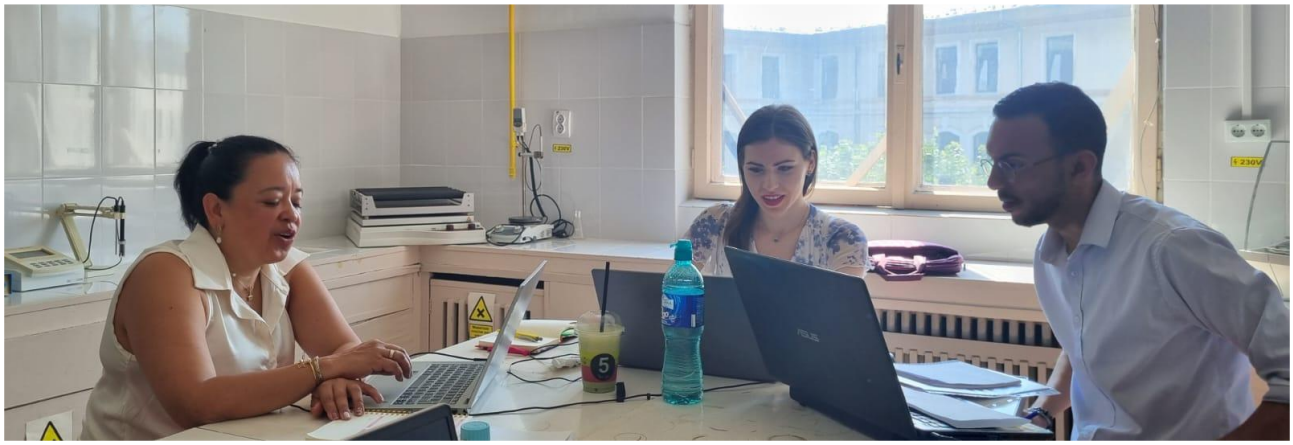
The meeting was attended by representatives of **MGM STAR Construct S.R.L.**, including **Dr. Ing. Mihai Iordoc**, **Dr. Ing. Alaa Abou Harab**, **Dr. Ing. Mohammed Alqasim Alsabti**, and **researcher Stefan Silviu Ovidiu**, together with international participants from Universidad Tecnológica de Pereira, CNRS Orléans, University of Pamplona, and the University of Caldas.

Dr. **Ahmed Malek Djaballah** and **Associate Professor Luz Karime Hernández Gegen** had the privilege of visiting the technical characterization platform at POLITEHNICA Bucharest. The visit was hosted by Dr. Mădălina Pandele, who provided a comprehensive overview of the available analytical facilities and their applications in advanced materials research.

During our visit to Professor dr. Simina Stefan's laboratory, we had the opportunity to explore the different research facilities and experimental platforms dedicated to water treatment and

environmental remediation. The visit provided valuable insight into the laboratory's multidisciplinary research activities and its commitment to addressing current environmental challenges.

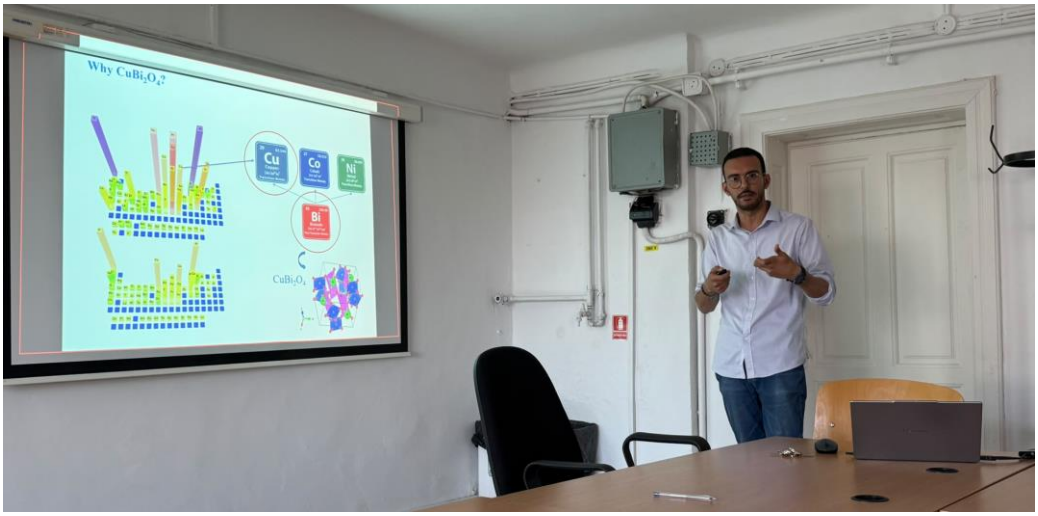
A follow-up meeting was held with Elisa Broască and Ingrid Bormac following their research internship at the CNRS-CEMHTI laboratory in Orléans, France.



As part of a technical and scientific exchange, we conducted a visit to MGM STAR CONSTRUCT S.R.L., where we were warmly welcomed by the **Phys. Arcadie Sobetkii, Scientific Director**. This visit provided an excellent opportunity to gain a deeper understanding of the company's activities, expertise, and strategic development objectives.

The exchange allowed **Dr. Ahmed Malek Djaballah** and **Associate Professor Luz Karime Hernández Gegen** to better understand the company's vision and its commitment to technological advancement and customer-oriented solutions.

Dr. Ahmed Malek Djaballah also delivered a seminar on advanced photocatalytic nanomaterials for environmental remediation, biomass valorization, and green hydrogen production. The presentation highlighted a multidisciplinary research approach combining nanotechnology, environmental chemistry, materials science, and renewable energy to develop sustainable solutions for global environmental and energy challenges.



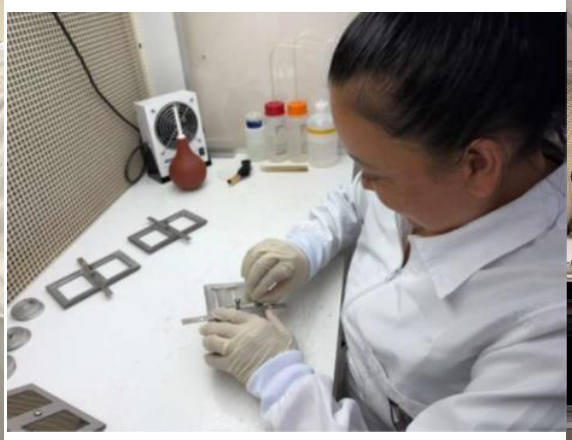
The visit to the **National Institute for Laser, Plasma and Radiation Physics (INFLPR)** in Măgurele offered a valuable opportunity to explore one of Romania's leading research center dedicated to advanced physics and materials science. Throughout the visit, participants were introduced to the institute's state-of-the-art facilities and gained insight into the wide range of scientific activities carried out within its laboratories. The experience highlighted the importance of research infrastructures such as INFLPR in promoting scientific excellence and fostering collaboration between national and international research communities.

The visit to the **Institute of Physical Chemistry "Ilie Murgulescu"** was an enriching experience that provided to the researchers with a deeper understanding of scientific research in the field of chemistry. We had the privilege of visiting the Coordination Chemistry Laboratory, where the seconded researchers were warmly welcomed by Dr. Daniela Culita, who introduced them to the laboratory's research activities and ongoing projects. This practical insight helped the seconded researchers better understand the complexity and precision required in laboratory research.

The visit to the **CAMPUS Research Institute** was a highly informative and enriching experience, providing us with valuable insight into state-of-the-art research infrastructure and advanced characterization techniques used in materials science and biomedical research. D**r. Mădălina Pandele** guided the seconded researchers through the institute's technical platforms and laboratories, presenting their research activities and scientific capabilities.

During the technical visit to **MGM STAR CONSTRUCT S.R.L.**, the seconded researchers had the opportunity to explore the company's research and manufacturing activities in the field of advanced gas sensing technologies under the guidance of **Phys. Arcadie Sobetkii, Scientific Director** of the company. The visit included a hands-on demonstration of the on-site fabrication of **Ni–Cr (Nickel–Chromium) gas sensors**, allowing seconded researchers to observe the complete preparation process, from material deposition and sensor assembly to the final stages of device fabrication.

The seconded researchers sincerely thank **Phys. Arcadie Sobetkii**, **Scientific Director** and the entire **MGM STAR CONSTRUCT SRL** team for their warm hospitality, insightful explanations, and the opportunity to participate in his enriching technical experience.


The seconded researchers were introduced to **S.C. KEMCRISTAL S.R.L.** company's production facilities, quality control procedures, and research activities, learning about the different stages involved in the development and manufacturing of high-quality chemical products. The technical team and the **Head of the Laboratory, Dr. Carmen Deleanu** explained the importance of maintaining strict quality standards, implementing modern analytical techniques, and ensuring safe and sustainable production processes.

The **meeting with the Turkish project partners**, **Assoc. Prof. Dr. Fatih Erci** and **Assist. Prof. Dr. Selman Erdogdu**, Researchers at Necmettin Erbakan University, Faculty of Science, involved in the NANOEMCA project in collaboration with MEDISEN Medikal Teknolojiler Araştırma Geliştirme Sanayi Ticaret Limited Şirketi (Turkiye) represented an important milestone in strengthening the scientific collaboration established within the NANOEMCA project.

This secondment provides an excellent opportunity for the seconded staff to collaborate with like-minded and talented research professionals, exchange knowledge and expertise, foster creativity, and support their professional development and career progression.

Funding and Disclaimer

This project received funding from the European Union's Horizon Europe research and innovation program under Grant Agreement No. 101235833.

Funded by the European Union. Views and opinions expressed are solely those of the author(s) and do not necessarily reflect those of the European Union or the European Research Executive Agency (REA). Neither the European Union nor the granting authority can be held responsible for them.