NANO/MICRO MATERIALS WORKSHOP

Organized by: Regional Innovation Center of EIT RawMaterials, Albania

Conference: NanoBalkan2025

Date: Friday, 03 October 2025

Location: Tirana International Hotel & Online (Hybrid)

Time: 09:00 – 13:00

Purpose of the Workshop

The (Nano/Micro) Materials Workshop is designed as a dynamic *roundtable discussion* that brings together stakeholders from geological surveys, mining companies, research institutions, and innovation networks to explore how nanotechnology and functional micro-materials can accelerate progress in the row material especially in the critical raw materials (CRM) sector. With a focus on exploration, processing, and recycling, the workshop aims to link applied science with operational realities in the Western Balkans. Key discussion areas include functional nanomaterials in mineral sensing and extraction, and circular recovery of CRMs from waste. The workshop also explores synergies between regional strategies and EU innovation instruments such as Horizon Europe, EIT RawMaterials boosting the role of start-ups and universities for spanning off the nano/micro raw materials in CE.

Draft Agenda

Nr	Time	Topic	Speaker / Institution
1	09:00 – 09:15	Opening Remarks – Introduction to the Workshop and RIC Albania's Mission	**Dr. Lavdie Moisiu**, Director, Regional Innovation Center – EIT RawMaterials Albania
2	09:15 – 09:40	**The Role of Nano/Micro Materials in Raw Materials Innovation** *Introductory Remarks to Set the Context: How Nano/Micro-Scale Innovations Are Shaping CRM Supply Chains Through Improved Exploration, Advanced Processing, And Material Substitution. exploration*	**Prof. Dr. Përparim Alikaj** EIT RawMaterials
3	09:40-10:00	**Business models for circular economy solutions including waste**	**Mr. Aleksandar Stamboliev**

			EIT Community Officer North Macedonia
		Applied researches	
4	10:00-10:15	**GeoCura: Transforming Mine Waste into Self-Healing, Sustainable Concrete** *Overview: This talk will explore GeoCura is an innovative startup aiming to revolutionize the construction industry by converting hazardous mine tailings and industrial by-products like fly ash into cement-free, self-healing geopolymer concrete. This material not only reduces carbon emissions by up to 80% compared to traditional cement, but also autonomously repairs microcracks using bacteria-based healing agents (Bacillus Subtilis), significantly extending infrastructure lifespan and reducing maintenance costs.*	**Huseyin Cetinkaya**(GEOCURA (Belgium) Fabiola Dodaj(GEOCURA (Albania) Shah Saud (GEOCURA (Spain)
5	10:15 – 10:45	**Presentation: Nano techniques applied in Materials Science and Engineering** *Overview: Nano techniques serve as powerful tools in advancing Materials Science & Engineering.* *Their application spans renewable energy, sustainable composites, digitalization of industry, and infrastructure materials—demonstrating the transformative potential of nanotechnology in shaping future innovations.*	**Prof. Asoc. Irida Markja** Materials Science and Technology/PUT
	10:45 – 11:00	Coffee Break & Networking	
6	11:00 – 11:20	**Presentation: Plastic shrinkage and capillary pressure development of low-embodied CO_2 mortars.** *Overview: Sustainable mortars can significantly reduce embodied CO_2 but may be more prone to plastic shrinkage cracking if not properly engineered.*	**Dr. Alban Metallari** Materials Expert/ Institute of Ceramics, Glass and Construction Materials, Freiberg, Germany.

		Understanding capillary pressure evolution helps predict and control cracking risks. Optimized material design and curing strategies enable both sustainability and durability.	
7	11:20 – 11:40	**Potential of Albanian for exploration of new SRM/CRM**	**Dr.Eng. Geologist Enton Bedini** (Albanian Geological Survey)
8	11:40 – 12:10	**Smart Geopolymer Coatings for a Safer, Greener Built Environment;** Revolutionizing Opportunities in Tailings and Urban Waste for the Circular Economy *Overview: 1- RecyGeo introduces an innovative, sustainable coating solution derived from industrial waste—primarily fly ash, lime mud, and paper industry by-products. Designed for fire resistance, thermal insulation, and environmental resilience, this geopolymer-based coating offers a low-carbon alternative to conventional materials in the construction and renovation sectors;*	**Busra Karakas** (RECYGEO, Belgium)
9	12:10 – 12:40	**Building the Future with Textile and Mining Waste;** *Kaabricks introduces a revolutionary line of 100% waste-based bricks and mortars that require no cement, no kiln, and cure at room temperature. These materials not only rival traditional bricks in strength and durability but also outperform them in thermal and acoustic insulation—while slashing CO_2 emissions and energy consumption. This presentation explores how Kaabricks is reshaping the construction industry through circular economy principles, offering scalable, affordable, and eco-conscious building solutions. From structural bricks to textile-reinforced concrete, Kaabricks is turning waste into architectural wonders.*	**Chanda Mubanga** (KAABRICK, Belgium) **Valentina Chessa** (KAABRICK, Spain)

10	12.40-13:00	**AI in Geological Modeling for CRM Exploration**	**Andrii Sevriukov** CEO Beholder
	13:00-13.30	**Closing & Conclusions: Summary, Networking Opportunities, and Next Steps**	RIC Center & NanoBalkan2025 Host Representative and participants