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Your Target Call

HORIZON-CL4-2027-01-MAT-PROD-22 : Innovative advanced materials and new production processes – reducing dependencies on Critical and Strategic Raw Materials (IA) (Innovative Advanced Materials for the EU and Processes4Planet partnerships)

Your Expected Contribution to the Project / Consortium

Work package and task leader: materials synthesis & characterization; ensures alignment with the EU safe and sustainable by design (SSbD) framework; management & exploitation support.

Biography

Core research expertise integrates functional materials chemistry, advanced ceramic synthesis, high-entropy alloys, high-temperature processing, and comprehensive structural, thermal, and electrochemical characterization. Key research achievements include the development of functional oxides, high-entropy alloy systems, catalysts, and tailored material architectures for sustainable energy conversion, storage, and industrial applications. The scientific approach combines experimental synthesis and in-situ testing with data-driven methods to accelerate materials optimization and process efficiency.

Research Areas / Expertise

Advanced functional materials: synthesis, structural design, and property optimization of inorganic materials, including advanced ceramics, functional oxides, high-entropy alloys (HEAs) and glass/vitreous matrix systems for energy and industrial applications. Redesign of materials and chemical processes to minimize or substitute critical and strategic raw materials (CRMs/SRMs), enhancing resource efficiency and supply chain security. Key methodologies: in-situ & multi-parametric characterization.

Motivation, Expectation and Plan

Drive bilateral research collaboration between European and Korean partners under Horizon Europe Cluster 4 (2027 calls), leveraging joint expertise in advanced materials, Critical Raw Material (CRM) substitution, and fast industrial processing. Expectations & goals: to secure a work package lead or key partner role.