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Europe's new CONNECT-NM partnership sets ambitious agenda for accelerating nuclear materials innovation

The EU-wide research and innovation partnership on nuclear materials was officially launched at its kick-off meeting, inaugurating valuable coordinated work in the field.

The CONNECT-NM partnership (Coordination of the European Research Community on Nuclear Materials for Energy Innovation), co-funded by the European Commission and coordinated by CIEMAT, was officially launched during its kick-off meeting from 2 to 4 October in Madrid. This event marked the formal beginning of the initiative aimed at advancing research, development, and innovation in the field of nuclear materials.

In the context of the clean energy transition and Europe's climate neutrality objectives, nuclear energy has a critical role to play as the world's second-largest source of low-carbon energy. Nuclear materials are essential to ensuring nuclear energy's safety, efficiency, economy, and sustainability. The consensus achieved on establishing an ambitious and coordinated EU-wide partnership is a significant milestone towards this goal.

The CONNECT-NM co-funded European partnership, one of the four in the EURATOM work programme, seeks to accelerate the development, manufacturing, and qualification of innovative nuclear materials for all reactor generations, by incorporating modern digital technologies into materials science practices. By uniting leading research institutions and promoting knowledge sharing, CONNECT-NM ambitions to position Europe at the forefront of nuclear materials innovation. The partnership brings together leading research centres from across EU Member States and associated countries, pooling national resources towards commonly defined objectives. Additionally, all foreseen activities will align with both European and national nuclear materials initiatives, strengthening research, development, and innovation (R&D&I) while preventing fragmentation and duplication.

The kick-off meeting brought together leading experts and key stakeholders from across Europe to discuss the strategic direction of CONNECT-NM. The agenda included the presentation of the work plan and the five main research lines that will guide the partnership's activities: 1. Advanced materials development and manufacturing; 2. Materials and component qualification: testing, standardization and design rules; 3. Non-destructive examination and materials health monitoring; 4. Advanced materials modelling and characterization; 5. Nuclear materials knowledge and data management. These research areas will be the foundation for future project calls that the partnership will launch.

"The launch of CONNECT-NM marks an important step forward in coordinating research on nuclear materials across Europe," said Lorenzo Malerba, Coordinator of the CONNECT-NM partnership. *"By bringing together key institutions and aligning our efforts with both national and European priorities, we aim to accelerate innovation in nuclear materials, addressing the challenges and opportunities of the energy transition."*

In addition to outlining its research goals, the CONNECT-NM kick-off meeting served as a valuable opportunity to foster collaboration and build connections with other European and international stakeholders. Participants engaged in discussions on education and mobility initiatives designed to train the next generation of nuclear materials experts, and on the coordination of access to shared European research infrastructures.

With the kick-off meeting concluded, CONNECT-NM is now set to begin its ambitious research programme, with ongoing engagement from key players across the nuclear materials landscape. The involvement of industry, technical safety organisations (TSOs), and regulators as active partners and end-users seeks to ensure that the partnership's outcomes will be practical, relevant, and widely adopted.