Industrial Coordinator Sought for Horizon Europe Innovation Action (IA) Project on Advanced Nanocomposite Radiation Shielding Materials

Summary

Profile type	Company's country	POD reference
Technology request	**Türkiye**	**TRTR20260202029**
Profile status	**Type of partnership**	**Targeted countries**
PUBLISHED	**Research and development cooperation agreement**	**• World**
Contact Person	**Term of validity**	**Last update**
Enrico FRANZIN	**2 Feb 2026** **2 Feb 2027**	**2 Feb 2026**

General Information

Short summary

A university from Türkiye is seeking an industrial partner willing to act as project coordinator for a Horizon Europe IA on lightweight nanocomposite layers and nanocomposite fiber materials for radiation shielding and decontamination. Required capabilities include pilot-scale manufacturing and scale-up of composites/coatings/fibers/textiles, process optimization, quality control, and support for TRL 5 → 7, including demonstrators in realistic environments.

Full description

A university from Türkiye is preparing a Horizon Europe Innovation Action proposal with their patent-based technology. The current consortium comprises academic and RTO partners from Türkiye, Germany, France, Italy, and Slovenia and is being strategically expanded for industrial leadership.

The project focused on the development of lightweight, flexible polymer nanocomposite layers and nanocomposite fiber-based, textile-like materials for advanced radiation shielding and decontamination in clinical and other high-reliability environments.

Main targets of the project are polymer nanocomposites incorporating functional nanoparticles to enable multi-radiation attenuation (X-ray, gamma, neutron) while overcoming the weight, ergonomics, and sustainability limitations of conventional lead-based solutions. The project aims to advance the technology from TRL 5 to TRL 7, including pilot-scale manufacturing, industrial scale-up, validation in realistic operational environments, and demonstrator development, supported by AI-driven material optimization and life cycle assessment (LCA).

They are seeking an industrial partner (SME or large enterprise) willing to act as project coordinator, with a central role in consortium leadership, scale-up strategy, pilot production, demonstrator manufacturing, and exploitation planning, and with proven capabilities in manufacturing and scale-up of composites, coatings, fibers and/or textile structures, process optimization, quality control, and operation in regulated industrial environments. Organizations with ambition to lead a high-impact Horizon Europe project and shape its industrial and market-oriented trajectory are invited to get in contact.

Advantages and innovations

The project introduces a new class of lightweight, flexible polymer nanocomposite layers and hybrid nanocomposite fiber-based materials designed for multi type radiation shielding and decontamination in clinical and other high-reliability environments. In contrast to conventional lead-based shielding, which is heavy, rigid, and associated with toxicity and ergonomic limitations, the proposed materials combine low density, flexibility, and multifunctionality, enabling safer, more comfortable, and sustainable use for patients and professionals.
A core innovation is the integration of functional nanoparticles within polymer matrices and fiber architectures, enabling simultaneous attenuation of X-ray, gamma, and neutron radiation. Beyond primary radiation absorption, the materials are engineered to mitigate secondary radiation arising from radiation–matter interactions and to support contamination control and decontamination, delivering functionality not achievable with single-purpose shielding solutions.
The project further advances the state of the art through AI-assisted materials design and optimization. Machine-learning models trained on combined experimental and simulation data accelerate the identification of optimal compositions and architectures, reducing trial-and-error experimentation and significantly shortening development cycles. This digitalized workflow enables rapid convergence toward high-performance, application-specific solutions.
Innovation is reinforced by a clear TRL progression from 5 to 7, integrating pilot-scale manufacturing, realistic-environment demonstrators, and quality-controlled scale-up strategies. The systematic incorporation of safe- and sustainable-by-design principles, environmentally compatible production routes, and life-cycle assessment (LCA) ensures regulatory readiness and market relevance.

Technical specification or expertise sought

Willingness to act as project coordinator, Pilot-scale manufacturing and scale-up capability,• Experience with polymer-based nanocomposites, nanocomposite fibers and textiles, Process optimization expertise, Quality control and quality assurance capability, Support for TRL progression from 5 to 7.

Stage of development

Lab tested

IPR Status

Secret know-how

IPR Notes

Sustainable Development goals

- **Goal 17: Partnerships to achieve the Goal**
- **Goal 3: Good Health and Well-being**

Partner Sought

Expected role of the partner

The partner will act as the industrial coordinator, leading both the technical scale-up activities and overall project management and coordination. The partner will drive the transition of the developed nanocomposite layers and

nanocomposite fiber-based materials wowen to textile form from TRL 5 to TRL 7, define and implement pilot-scale manufacturing and scale-up strategies, optimise processes, and establish robust quality control and assurance procedures. The role includes overseeing the development of pilot-line demonstrators and supporting validation in realistic operational environments in close collaboration with academic, RTO, and clinical end-user partners. As project coordinator, the partner will be responsible for day-to-day project management, coordination of work packages, timelines, risk management, and internal communication, while also contributing to exploitation, scale-up, and market-entry planning, ensuring alignment with regulatory requirements and safe- and sustainable-by-design principles.

Type of partnership

Research and development cooperation agreement

Type and size of the partner

- **R&D Institution**
- **Big company**
- **SME 50 - 249**

Dissemination

Technology keywords

- **03005009 - Woven technical textiles for industrial applications**
- **10001005 - Radiation Protection**

Market keywords

- **05007007 - Other medical/health related (not elsewhere classified)**
- **08003007 - Other industrial equipment and machinery**

Targeted countries

- **World**

Sector groups involved

- **Textiles**
- **Aerospace and Defence**