

DELTA-MPIS

Engineering innovation in composites



About us

At DELTA-MPIS, we specialize simulation-driven engineering, optimizing the design, performance, and structural integrity of composite materials and complex structures. Our expertise lies in numerical modeling, multiphysics simulations, and digital twin development, enabling precise and reliable engineering solutions across various industries.

Operating within Lefkippos Technology Park, Greece's leading technology hub, DELTA-MPIS is based at NCSR Demokritos, the country's foremost research center. This environment fosters collaboration with academic institutions, research organizations, and industrial partners, ensuring that our methodologies are at the forefront of technological advancements.

We actively contribute to European-funded research projects and industrial R&D initiatives, applying advanced finite element methods (FEM) and computational mechanics to solve complex engineering challenges. Our work supports structural health monitoring, predictive maintenance, and material performance optimization, helping industries transition toward more efficient, resilient, and high-performance structural solutions.



Our Expertise

Advanced Simulation & Modeling

Utilizing cutting-edge computational tools, including finite element simulations, digital twin development, for predictive analysis and performance validation in sectors such as marine applications, composite manufacturing, and hydrogen storage.

Structural Performance & Safety Assessment

Ensuring composite and metal structures meet high standards of durability, reliability, and regulatory compliance, with real-time monitoring and optimization.



Process Optimization for Composites

Enhancing manufacturing efficiency, reducing material waste, and improving production workflows.

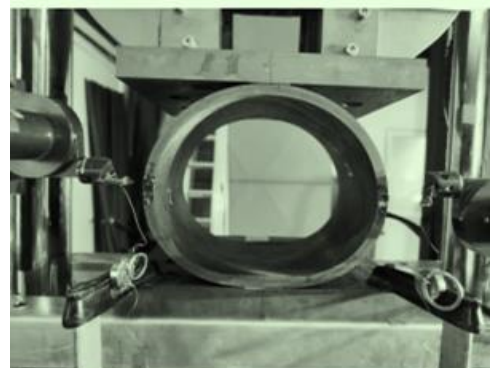
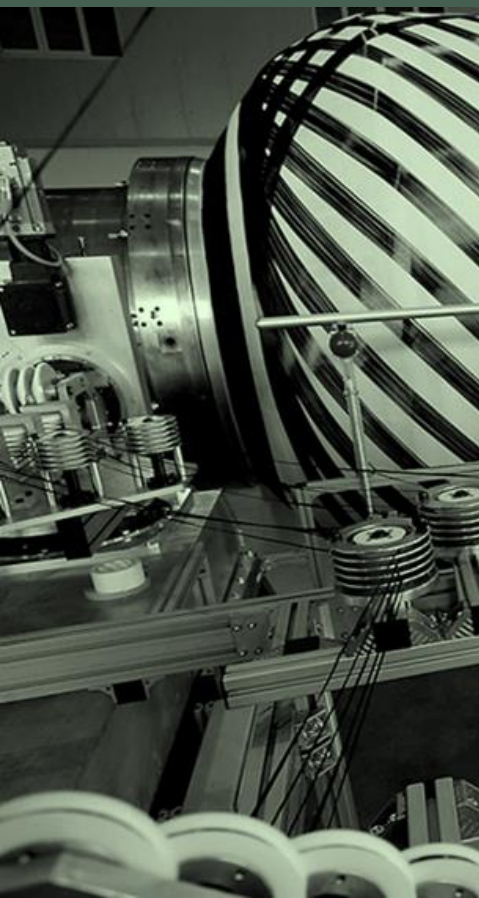
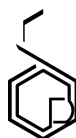
Material Behavior Analysis

Investigating composite properties under various conditions to enhance their mechanical performance and longevity.

Lightweight Design & Performance Enhancement

Developing high-strength, lightweight composite solutions for applications in aerospace, automotive, maritime, and hydrogen storage systems.

Optimizing
Structures,
Enhancing
Performance,
Driving
Innovation.

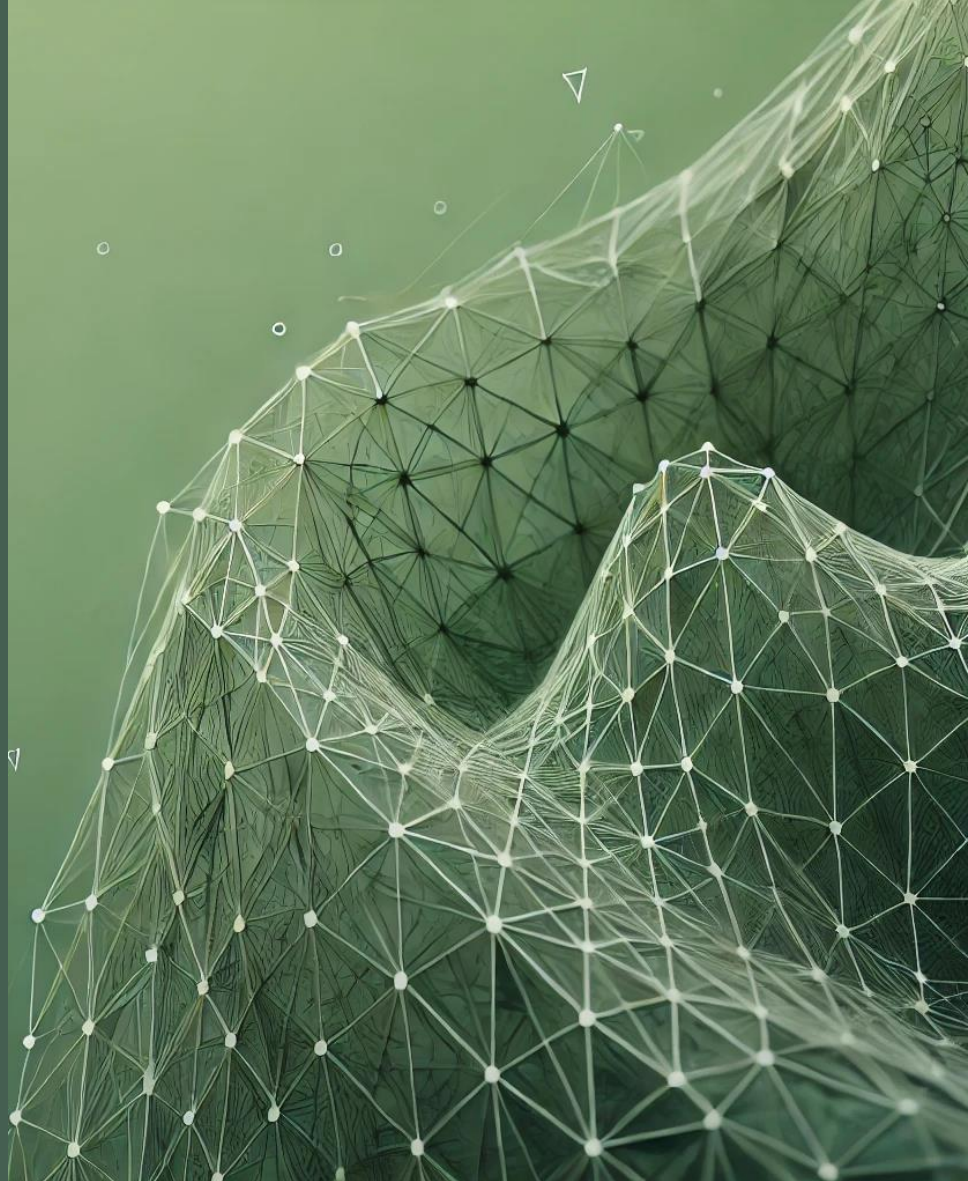


Research

We are actively involved in European-funded research projects, collaborating with industry and academia to drive innovation in composite materials, smart manufacturing, and digitalization. Our research spans process optimization, advanced materials, simulations, and cyber-physical systems, focusing on improving efficiency, reliability, and sustainability in sectors such as marine, aerospace, automotive, and hydrogen storage.

Additionally, we emphasize training and knowledge transfer, equipping professionals with expertise in cutting-edge composite technologies.

By integrating structural health monitoring, sensor technologies, and multiscale modeling, we contribute to the development of next-generation composite applications that enhance performance, safety, and environmental impact.



An extensive network of Digital Innovation Hubs for boosting technology and business development in South, Eastern and Central Europe

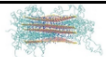
Digital Innovation HUBs and Collaborative Platform for Cyber-Physical Systems



materialize

Integrated online cloud platform of high performance materials

Novel Capacitive Deionization for Water Desalination

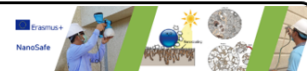


HEAT



Enhanced Thermal conductivity of Polyethylene

Improving technification, safe production and use of nanomaterials in stone sector



Digital Twin for optimizing the manufacturing of pressure vessel

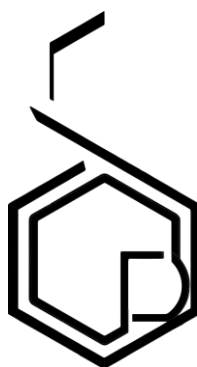
Advanced Materials & Manufacturing United for LightwEighT (AMULET)



Educational platform for Life Cycle Analysis of treatments based on nanoparticles

Masters Course on Smart Sustainability Solutions





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