

**PhD Fellowship in**  
**“Damage mitigation in lightweight marine composites”**

**XXXVIII cycle, starting date February 1<sup>st</sup> 2023**

**Deadline for application: November 28, 2022**

**PhD program in Marine Sciences and Technology**  
**University of Genova**

The PhD project aims at the design of damage mitigation concepts for sandwich composite structures used for naval applications. Sandwich composites are materials made of two external stiff layers, typically in aluminum or fiber reinforced composites, and an internal core, typically made of aluminum or polymeric foams or balsa wood. The use of these lightweight composites in naval applications improves energy efficiency.

Sandwich composites are highly sensitive to the presence of flaws at the face/core interface, which may propagate at the interface or kink into the core, and cause catastrophic collapses. In the project we will formulate analytical and numerical models to investigate the response of these structural systems when used in extreme marine environments and design concepts able to mitigate damage caused by impacts and fatigue loadings and its effects. The final aim of the project is to improve resistance, resilience and energy efficiency of mobility systems in waterways.

The theoretical work will be supported by experimental tests conducted at the technical University of Denmark, as part of a joint collaboration, and at the University of Genova.

The student will join the Curriculum in Engineering for Marine and Coastal Environments of the Department of Civil, Chemical and Envir. Engrg (<http://dottorato.dicca.unige.it/eng/emaces/>). He/she will also join the newly formed National Center on Sustainable Mobility and collaborate to the research in the Spoke 3: Waterways, Work Package WP1: Energy Efficiency.

**Project Call (Notice of Competition):** check the university website; expected date of publication October 28, 2022. <https://unige.it/en/usg/en/phd-programmes>

**Admission requirements:** LM or MS degree obtained by December 31<sup>st</sup> 2022.

**Admission criteria:** check Call and Annex to the Call. The candidates must submit a CV, full transcripts of their Bachelor and MS degrees, a 10 page max research project (contact the project coordinators). Other required material will be defined in the Call.

The successful candidate is expected to have good basic knowledge in structural and solid mechanics, computational mechanics, mechanics of materials. Basic knowledge in composite materials would be an asset.

For more info or questions feel free to contact the project principal investigators

**Project coordinators:**

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