

PhD in INGEGNERIA DEI MATERIALI / MATERIALS ENGINEERING - 40th cycle

THEMATIC Research Field: ADVANCED POLYMERIC MATERIALS FOR CIRCULAR FIBER-REINFORCED COMPOSITES

Monthly net income of PhDscholarship (max 36 months)

€ 1400.0

In case of a change of the welfare rates during the three-year period, the amount could be modified.

Con	text of the research activity
Motivation and objectives of the research in this field	The main focus of the research project is on fiber- reinforced composite materials. The primary objective of this work is to design, develop and characterize novel (biobased) polymeric materials to be used as sustainable impregnating matrices in fiber-reinforced composite materials, to be ultimately applied in the wind energy sector. Such new polymeric systems will enable composite repair, reuse, remanufacturing and recycling. This research aims to open up new opportunities within the circular economy of fiber-reinforced composite materials, by prolonging their life-time, improving their end-of-life management and increasing their sustainability.
Methods and techniques that will be developed and used to carry out the research	Design, development and characterization of biobased reversible resins for fiber-reinforced composites; development of suitable approaches to assess the reversibility of such resins; optimization of the fiber impregnation process through relevant methods (e.g., resin infusion, vacuum bagging); set-up and optimization of suitable fiber-liberation and matrix recovery processes; chemical-physical, morphological, structural characterization of the developed resin materials and their fiber-reinforced composites; characterization and optimization of their reprocessability for second life applications. The research project is carried out within the framework of the Horizon EU funded project "ECORES WIND - Novel circular resin development for composite

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	WIND - Novel circular resin development for composite structures in wind energy applications" (Grant agreement ID: 101148066), which the research group is a member of. The PhD student will be expected to take part in the activities foreseen in the project and to actively interact with all the project partners, according to specific experimentation needs
Educational objectives	The PhD student will acquire new knowledge and skills in materials development, characterization, process optimization, structure-property-process relationships, with a major focus on fiber-reinforced composites and the circular economy. The development of soft skills (e.g., team working, public speaking, project management, etc.) will also be fostered.
Job opportunities	Potential professional career pathways may be envisaged in the fields of: development, processing and recycling of polymeric and composite materials for various market sectors; industrial research and development; strategic consultancy
Composition of the research group	2 Full Professors 3 Associated Professors 5 Assistant Professors 5 PhD Students
Name of the research directors	Proff. Griffini - Turri

Contacts

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Additional support - Financial aid per PhD student per year (gross amount)	
Housing - Foreign Students	
Housing - Out-of-town residents (more than 80Km out of Milano)	

Scholarship Increase for a period abroad		
Amount monthly	700.0 €	
By number of months	6	

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Additional information: educational activity, teaching assistantship, computer availability, desk availability, any other information

Confidentiality: since this is a thematic scholarship, the management of Confidential Information, Results and their publication is subordinate to the restrictions agreed upon with the funding company. Upon acceptance of the scholarship, the beneficiary must sign a specific commitment.

Educational activities (funding for participation in courses, summer schools, workshops and conferences) – financial aid per PhD student per year:

- 1st year: around 1.900 euros per student
- 2nd year: around 1.900 euros per student
- 3rd year: around 1.900 euros per student

Teaching assistantship: availability of funding in recognition of supporting teaching activities by the PhD student:

There are various forms of financial of for activities of support to the teaching practice. The PhD student is encouraged to take part in these activities within the limits allowed by the regulation.