



PhD in INGEGNERIA MECCANICA / MECHANICAL ENGINEERING - 39th cycle

**PARTENARIATO PNRR Research Field: GREEN AM: TECHNO-ECONOMICAL
COMPARISON AND SUSTAINABLE LIFE CYCLE ASSESSMENT IN ADDITIVE
MANUFACTURING**

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.

Context of the research activity

**Motivation and objectives of the research
in this field**

Zero-net, decarbonization, green and sustainable manufacturing are some of the main challenges we are going to face in the next few years. In this scenario, additive manufacturing represents a very promising solution to derive the design freedom in the direction of a new generation of green products which are lighter, requiring a reduced number of components and extended lifetime. Novel solutions to evaluate the environmental fingerprint of AM products and processes are required to drive the paradigm shift.

The Research Activity is financed by **LEONARDO S.p.A.** in the framework of the **MICS 3A-Italy project (*Partenariato Esteso per il Made in Italy Circolare e Sostenibile* PE0000004) - Spoke 6 (Additive Manufacturing as Disruptive Enabler of the Twin Transition)** as part of the National Plan on Recovery and Resilience (PNRR - Missione 4, Componente 2 Dalla Ricerca all'Impresa, Investimento 1.3). Additional information at <https://www.mics.tech>.

Norms of Reference: CUP B83D22001120004, D.D. 1551 del 11/10/2022.



	D.D. 341 del 15/03/2022 Avviso pubblico per la presentazione di Proposte di intervento per la creazione di "Partenariati estesi alle università, ai centri di ricerca, alle aziende per il finanziamento di progetti di ricerca di base" nell'ambito del Piano Nazionale di Ripresa e Resilienza, Missione 4 - Istruzione e ricerca - Componente 2 - Dalla ricerca all'impresa - Investimento 1.3, finanziato dall'Unione Europea - NextGenerationEU.
Methods and techniques that will be developed and used to carry out the research	-LCA;- Techno-economical comparison;- Experimental design planning and analysis;- Sensitivity analysis;- Team-working will be stimulated with the aim of providing appropriate solutions to actual challenges, which require multidisciplinary skills.
Educational objectives	Doctoral candidates will acquire competences on design, optimisation, and LCA assessment of products and processes together with a deep knowledge of all the AM processes currently available on the market.
Job opportunities	Italy and Lombardy Region have leading positions in manufacturing worldwide. Our last survey on MeccPhD Doctorates highlighted a 100% employment rate within the first year and a 35% higher salary, compared to Master of Science holders in the same field. This research activity is developed with Leonardo S.p.A. ; the industrial supervisor will be Dr. Romano Iazurlo.
Composition of the research group	4 Full Professors 3 Associated Professors 6 Assistant Professors 18 PhD Students
Name of the research directors	Prof. Bianca Maria Colosimo

Contacts

For questions about scholarship/support, please contact phd-dmec@polimi.it.

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

Additional information: educational activity, teaching assistantship, computer availability, desk availability, any other information
<p>Financial aid is available for all PhD candidates (purchase of study books and materials, funding for participation in courses, summer schools, workshops and conferences) for a total amount of euro 5.707,13.</p> <p>Our candidates are strongly encouraged to spend a research period abroad, joining high-level research groups in the specific PhD research topic, selected in agreement with the Supervisor. An increase in the scholarship will be applied for periods up to 6 months (approx. 700 euro/month- net amount).</p> <p>Teaching assistantship: availability of funding in recognition of supporting teaching activities by the PhD candidate. There are various forms of financial aid 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 regulations.</p>