



# PhD in INGEGNERIA MECCANICA / MECHANICAL ENGINEERING - 39th cycle

## PARTENARIATO PNRR Research Field: ADDITIVE MANUFACTURING FOR MECHATRONICS

### 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

Additive manufacturing represents a very promising solution for 3D printing of mechatronics devices. This PhD path is developed in close connection with Leonardo Company and STIIMA -CNR.

The Research Activity is financed by LEONARDO S.p.A. in the framework of the MICS 3Altaly 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

Experimental design planning and analysis  
Sensitivity analysis



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|  | <p>Sensitivity analysis<br/>                 Process optimization<br/>                 Team-working will be stimulated with the aim of providing appropriate solutions to actual challenges, which require multidisciplinary skills.</p>                             |
| <b>Educational objectives</b>            | <p>Doctoral candidates will acquire competences on design, optimisation, and techno-economical assessment of products and processes together with a deep knowledge of all the AM processes currently available on the market.</p>                                    |
| <b>Job opportunities</b>                 | <p>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.</p> |
| <b>Composition of the research group</b> | <p>4 Full Professors<br/>                 3 Associated Professors<br/>                 6 Assistant Professors<br/>                 18 PhD Students</p>   |
| <b>Name of the research directors</b>    | <p>Prof. Bianca Maria Colosimo</p>   |

| <b>Contacts</b>   |  |
|---|--|
| <p>Names of research directors: Bianca Maria COLOSIMO (Polimi), Eng. Gianluca RIZZI (LEONARDO), Eng. Irene FASSI (STIIMA - CNR).</p> <p>For questions about scholarship/support, please contact <a href="mailto:phd-dmec@polimi.it">phd-dmec@polimi.it</a>.</p> |  |

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

| <b>Scholarship Increase for a period abroad</b> |         |
|---|---------|
| <b>Amount monthly</b>                           | 700.0 € |
| <b>By number of months</b>                      | 6       |



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

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.

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).

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.