## Research Area

**Area 3 Engineering Design and Manufacturing for the industry of the Future**

## Research Field: Design and development of monitoring systems of physiological parameters

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## Context of the research activity

| Motivations and objectives of the research in this field | Continuous monitoring of physiological and structural quantities is essential in many situations to warrant the safety of people and the quality of their life. Development of new measurement systems, implementation of data collection and processing techniques for human-centred measurements correction and validation, are key factors to advance the monitoring systems. These activities will support the objectives of the research projects ERC-LASER OPTIMAL (G.A. 759159) and LASER OPTIMAL@POLIMI (Rif. 2017-2075) |
| Methods and techniques that will be developed and used to carry out the research | The research program focuses on the development of new measurement systems, based on advanced technologies, for |
research

instance fiber-optic sensors and microelectronics. The main system requirements are: ergonomics, lightness and real-time analysis. Data analysis will be performed through standard approach and more advanced methods, such as machine learning, in order to provide features characteristic for the specific user.

The design of the monitoring system and the implementation of experimental set-up for modelling validation and for the assessment of the metrological performances of the system is a key tool for system development.

Educational objectives

The candidate will eventually fully master the tools and methods required for the analysis of the measuring systems. Capability of designing test set-ups and test procedures, developing of data processing techniques for measurements validation and uncertainty reduction will be among the developed skills.

Job opportunities

The skills developed during the PhD programme allow the candidate to work in any R&D department of companies and institutes performing experimental activities.

Our last survey on MeccPhD Doctorates highlighted a **100% employment rate** within the first year and a **35% higher salary**, compared Master of Science holders in the same field.

Composition of the research group

Web-page: http://misure.mecc.polimi.it

Number of Full Professors: 2
Number of Associated Professors: 5
Number of Assistant Professors: 4
Number of Post-Docs: 0
Number of PhD students: 10
Number of contracted researchers: 1

Names of the research directors

Paola Saccomandi
Alfredo Cigada

Contacts

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http://www.laseroptimal.polimi.it/

Additional support

Funding for educational activities (purchase of study books and material, funding for participation in courses, summer schools, workshops and conferences); funding per PhD student per year:

2nd year: per student € 1.534
3rd year: per student € 1.534

Teaching assistantship: availability of funding in recognition of support to teaching activities by the PhD student; 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.
Computer availability:
1st year: individual use
2nd year: individual use
3rd year: individual use

Desk availability:
1st year: individual use
2nd year: individual use
3rd year: individual use