



PhD in BIOINGEGNERIA / BIOENGINEERING - 39th cycle

THEMATIC Research Field: SERICIN AND FIBROIN MATERIALS FROM SILK TEXTILE INDUSTRY BY-PRODUCTS

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	The textiles system operates in an almost completely linear way: large amounts of non-renewable resources are extracted to produce clothes that are often used for only a short time, after which the materials are mostly sent to landfill or incinerated. But resources are limited and the amount of waste we produce through our behaviour increasing. Silk textile industry is not an exception. The objective of the research activity is to propose a radically new circular approach with the attempt to make the fashion industry more sustainable, that is by using pre-consumer waste, meaning excess and waste that occurs during production, for textile and materials with high added value and performances. (https://archive.ellenmacarthurfoundation.org/assets/downloads/A-New-Textiles-Economy.pdf)
Methods and techniques that will be developed and used to carry out the research	The objectives will be pursued by three approaches: an economical one to evaluate the possibilities in different textile markets and other new markets, an engineering one to give the materials new forms and shape, and a chemical one to modify the raw materials with specific functions.
Educational objectives	<ol style="list-style-type: none"> 1. have skills in the green area, 2. acquire enabling digital technologies in line with the profile, 3. master interdisciplinary tools, methods, and aptitude for



	a systemic vision, 4. develop talent to operate in interdisciplinary and multisectoral contexts acquired through exposure, even in teams, to case studies and challenges
Job opportunities	Professional profile characterized by: 1. forefront systemic skills, interdisciplinary vision, and specific aptitude to innovation in the fields of environmental sustainability and decarbonisation of the economy. 2. specialized skills in the green sector, and transversal skills, which allow to adopt a systemic approach to the design, management, innovation, and study of the life-cycle of green technologies.
Composition of the research group	0 Full Professors 1 Associated Professors 0 Assistant Professors 1 PhD Students
Name of the research directors	PROF. SIMONE VESENTINI

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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

Additional information: educational activity, teaching assistantship, computer availability, desk availability, any other information
<p>Educational activity: The student will be encouraged to attend to courses at POLIMI or abroad in International Schools.</p> <p>Teaching assistantship: 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> <p>Computer and desk availability: the student will be allowed to access facilities of both</p>



CBLab and ?BSLab of the DEIB.