



PhD in ARCHITECTURAL URBAN INTERIOR DESIGN - 40th cycle

THEMATIC Research Field: THE PROJECT OF AGRIVOLTAIC PLANTS (APV) IN CONTEMPORARY RURAL LANDSCAPES. THE CASE OF THE TERRITORIES OF EMILIA ROMAGNA

Monthly net income of PhDscholarship (max 36 months)
€ 1300.0
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	<p>In recent decades, photovoltaics has boomed in Europe as a critical technology in transitioning to a low-carbon energy system.</p> <p>In this context, Agro-Voltaics (AV) - the integration and increased use of agricultural land to efficiently produce food while generating solar energy - is viewed with great interest, as it would enable a range of innovative applications that exploit the synergies between energy production and agriculture. Such synergies could make rural communities more competitive and sustainable, allowing farmers to be at the heart of the European Green Deal, driving the modernization of the EU's food system and its resilience to climate change. For example, AV can easily be integrated with so-called 'precision agriculture', which uses digital tools to enable targeted agronomic interventions to counter the effects of climate change and, in particular, the need for better water management control. This research proposal starts with two questions:</p> <ol style="list-style-type: none"> 1. what are the structures, forms, and images characterize the new AV landscapes? 2. How can the tools traditionally used by landscape architecture to describe and interpret rural landscapes with a view to their modification be reformulated with the new infrastructural process impacting the countryside? <p>The starting hypothesis is that the set of new conditions associated with the AV program requires an approach to</p>



	<p>the design, construction, and management of new installations that are also capable of effectively addressing the obligation to mitigate their impact not only at the ecological-environmental level but also at the socio-cultural level, effectively confronting the problem of social acceptability, which today represents one of the main obstacles in the management of implementation processes.</p> <p>The relationship between AV facilities and the landscape should result from a complex negotiation between a site's infrastructure, environmental impact, cultural significance, and functionality. A balance between these factors is essential to ensure that infrastructure development contributes positively to the 'quantitative' needs of food and solar energy production and the 'qualitative' objective of preserving natural and cultural landscapes. Therefore, the research aims to outline and design new spatial models for AV infrastructures inserted into agricultural landscapes, integrating them into the different contexts with their complexity of lines and shapes, thanks to the expertise of the discipline of landscape architecture.</p>
<p>Methods and techniques that will be developed and used to carry out the research</p>	<p>The candidate will develop a research methodology starting from the lectures and assignments of the AUID courses and the Polimi Ph.D. School courses.</p> <p>For the general frame of the research activity, AUID refers to the "Charter on Architectural Research" (2012, updated in 2022) elaborated by the European Association of Architectural Education (EAAE), to the "Principles for Innovative Doctoral Training" by the Directorate-General for Research & Innovation of the European Commission (2011) and the Regulations of the Polimi Doctoral School. Studying the different formats, methods, and expressions of research in architectural design, the candidate will profile a personal methodology considering the specificity of the selected topic, the target, and the attended results. The program considers design to be a necessary component of any research. With the AUID Faculty and the Supervisor(s), each candidate will find a specific position in the field bordered by research, design, theory, and practice.</p>



<p>Educational objectives</p>	<p>The training of the candidates aims to give a strong capacity of orientation in the field of architecture, of choosing and elaborating a selected theme, of organizing appropriate methodologies of investigation and dissemination, of producing texts, drawings, and artifacts that match the requested character of scientific research: originality, relevance, and rigor, as defined in the "Charter on Architectural Research" by EAAE.</p> <p>The faculty's primary educational goal is to drive the candidate to develop research using a well-organized method by conducting a comprehensive survey of the chosen question, which leads to an original track and output. The candidate is helped to acquire the skills to organize a consistent analysis of case studies, formulate a clear proposal for an original approach to a question, and elaborate innovative strategies and research methods. The candidate will be supported in delivering autonomous and innovative scientific products disseminated through seminars, publications, and conferences.</p>
<p>Job opportunities</p>	<p>The Program aims to train highly qualified researchers and professionals who will work in academic institutions, research centers, and public administration, as well as in the private sector, in the fields of architectural, urban, and interior design:</p> <ul style="list-style-type: none"> - University researchers and lecturers in the scientific fields of the Ph.D. Program. - Researchers with an excellent scientific profile in complex architectural developments and interventions for recovery and transformation. - Independent professionals qualified to manage highly complex design processes. - Designers with tasks of high responsibility in institutions and professional structures and leading manufacturers engaged in traditional residential and special utilities, cultural institutions (museums, libraries, universities, schools, cultural centers), public and private services, commercial networks, accommodation, and leisure. <p>More specifically, the expected outcome is to train a</p>



	researcher capable of assisting companies operating in the agro-voltaic sector or public administrations in charge of project validation in designing, implementing, and managing agro-voltaic plants integrated into the landscape.
Composition of the research group	1 Full Professors 0 Associated Professors 2 Assistant Professors 1 PhD Students
Name of the research directors	Sara Protasoni

Contacts

Research Director

Prof. Sara Protasoni
sara.protasoni@polimi.it

AUID Program Head

prof. dr. Alessandro Rocca
Alessandro.Rocca@polimi.it

Departmental Ph.D. Office

Marina Bonaventura
marina.bonaventura@polimi.it
phone +39/02/2399.5165

Marilena Mastalli

marilena.mastalli@polimi.it
Phone +39/02/2399. 5405

Further information is available at: <http://www.auid.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	650.0 €
By number of months	6



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

Some of the universities that are cooperating in the research

- Wageningen University, Landscape Architecture, NRGlab
- Università Cattolica del Sacro Cuore sede di Piacenza,
(Dipartimento di Scienze delle produzioni vegetali sostenibili)
- Katholieke Universiteit Leuven, Campus Sint-Lucas, Ghent
- TU Delft, School of Architecture
- TU Berlin, Institute for Architecture

Personal budget

Every PhD student has a budget to fund research activities (funding for participation in courses, summer schools, workshops, conferences, and the purchase of study books and materials). The total amount is 5.300,25 euros:

1st year: max 1.766,75 euro

2nd year: max 1.766,75 euro

3rd year: max 1.766,75 euro

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

There are various forms of financial aid supporting the teaching practice.

The PhD candidate is encouraged to participate in these activities within the regulations' limits.

Workspace

In the AUID hall, on the 4th floor of Bldg. 12 in Leonardo Campus, are available workstations for shared use. All the Ph.D. students can use their laptops with a wireless connection. Workstations and other equipment are available in the various departmental laboratories (Dastu) linked with the doctoral Program.