



PhD in ARCHITECTURAL URBAN INTERIOR DESIGN - 38th cycle

**PNRR_352 Research Field: THE CHALLENGE OF SUSTAINABLE MOBILITY:
ARCHITECTURE FOR RAILWAY INFRASTRUCTURES**

Monthly net income of PhDscholarship (max 36 months)

€ 1195.5

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 Program studies architectural urban and interior design in all aspects through the methodological frame of design-driven research, where design is the cultural environment to test and produce theoretical and technical knowledge.

The proposed research especially refers to Mission 2 and Mission 3 of the NRP/PNRR, " GREEN REVOLUTION AND ECOLOGICAL TRANSITION" and "INFRASTRUCTURES FOR SUSTAINABLE MOBILITY."

In particular, reference is made to M3C1 'INVESTMENT IN THE RAILWAY NETWORK', in which the NRP/ PNRR sets as objectives "decarbonisation reduction of emissions through the transfer of passenger and freight traffic from road to rail, increased connectivity and territorial cohesion through the reduction of travel times", as well as M3C2 "intermodality and integrated logistics". The Strategic Document for Passenger and Freight Mobility, drawn up by the Ministry of Infrastructure and Sustainable Mobility, formulated a schematic 'Pyramid of Priorities for Sustainable Mobility, according to which pedestrian and cycle traffic should be given greater importance, followed by public transport and shared mobility, and only at the end by private 2- and 4-wheel vehicles.

The multidisciplinary and multiscalar research focuses on urban design and landscape design: from the large scale in which the infrastructure expresses its specific condition as a linear link, to that which involves all active and interrupted transversalities (ecological corridors,



	<p>waterways, rows, paths), to the urban one, up to the elements that characterize the physical body of the infrastructure (roadway, interchanges and embanked edges, noise barriers, protections, bridges and underpasses, terminals intermodal and logistics, technological facilities).</p> <p>Many environmental values are involved: ecological (vegetation and wildlife), water (meteoric, irrigation, and groundwater), agronomic (farm and crop systems), acoustic, and air quality.</p> <p>Many are also the landscape and architectural values at stake: built heritage enhancement, redefining public spaces to improve their accessibility and inclusiveness, of daily use (pedestrian and bicycle paths, trails, rest areas). A theme that takes on its particular relevance and requires its own specific study is that of stations as fundamental hubs of complex and articulated relationships with the territory. They are also a place of intermodal exchange between different sustainable mobility (walking, cycling, public transport network, sharing mobility).</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 courses of the Polimi Ph.D. School. The candidate will work in the offices of the DASTU and the FNM company in close relationship with the group and the research manager.</p> <p>Foreseen activities: site inspections, territories and artifacts surveys, bibliographic and archival research, critical comparison with international cases, analysis of the cartographic heritage, elaboration of analytical mappings, comparison frameworks and synthesis of scenarios, drafting of strategic masterplans, publications, call for papers participation, conferences, research calls. From the definition of the topics of investigation and the cognitive framework, the identification of strategies and modes of intervention can serve as a replicable reference point in various contexts. It identifies, as an applicative field of experimentation and verification of the proposed approach, the system of the vast railway network of the Lombardia region managed by FNM S.p.A., an important partner in the development path of the research. The</p>



	<p>spatial scope is highlighted in its most general terms within the NRP/PNRR (p.10) "The national transportation infrastructure system is largely characterized by a heritage historical heritage of considerable extent and consistency, mostly articulated in the central and northern regions of the country."</p> <p>FNM S.p.A. is already active on these issues with the FILI Project, which concerns the redevelopment of the main FERRIVIENORD connection centres between Milano Cadorna and Malpensa, allowing for a fruitful exchange of experiences and synergy.</p> <p>The internship supported by the partner FNM S.p.A. will allow the candidate to spend at least 6 months working on research-related topics in close dialogue with the corporate supervisor. The company will put the candidate in the best conditions to develop the research.</p> <p>In addition to this, the candidate will spend a period of at least six months at the TU in Delft in order to study the highly advanced Dutch model of interchanges between slow and fast mobility and the ways in which infrastructure is often an opportunity for the design of places.</p>
<p>Educational objectives</p>	<p>Educational objectives focus on the deep understanding of a well-selected and defined topic, oriented to the ecological transition. The candidate will define specific research containing a comprehensive overview of the scientific question and an original track and output.</p> <p>The candidate will acquire the skill 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.</p>
<p>Job opportunities</p>	<p>The Program aims to train highly qualified researchers and professionals who will work in academic institutions, research centers, 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 the field of complex architectural developments and



	<p>interventions of recovery and transformation;</p> <ul style="list-style-type: none"> • Researcher with an excellent scientific profile in the field of International Cooperation Agency, UN Agency, and private international company; • Independent professionals qualified in the management of highly complex design processes; <p>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>
Composition of the research group	<p>15 Full Professors 21 Associated Professors 6 Assistant Professors 67 PhD Students</p>
Name of the research directors	prof. Michele Ugolini

Contacts

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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	
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Amount monthly	834.84 €
By number of months	6

National Operational Program for Research and Innovation	
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Company where the candidate will attend the stage (name and brief description)	FNM S.p.A.
By number of months at the company	6
Institution or company where the candidate will spend the period abroad (name and brief description)	TU in Delft
By number of months abroad	6

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

Universities and enterprises that cooperate in the research

- Katholieke Universiteit Leuven, Campus Sint-Lucas, Ghent
- HafenCity Universitaet Hamburg
- TU Delft, School of Architecture
- TU Berlin, Institute for Architecture
- FNM Group SpA

Educational activities (purchase of study books and material, funding for participation in courses, summer schools, workshops, and conferences)

financial aid (budget) per Ph.D. student (DOTE):

per three years: 4.872,90 euro

per year: 1624,30 euro

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.