



PhD in INGEGNERIA MECCANICA / MECHANICAL ENGINEERING - 38th cycle

Research Area n. 2 - Sustainable Mobility

**PNRR_351_PUBBL_AMMIN Research Field: ENVIRONMENTAL AND ECONOMIC
ASSESSMENT OF THE ENERGETIC TRANSITION IN TRANSPORT SECTOR THROUGH
CLEAN FUELS FROM RENEWABLE SOURCES (BIO-FUELS, HYDROGEN, E-FUELS)**

Monthly net income of PhDscholarship (max 36 months)

€ 1325.0

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**

This research addresses the challenges that the public administrations are facing in order to plan and to govern a feasible **energetic transition toward sustainable mobility** and new modes of transport (e.g. electric and hydrogen vehicles). The PhD will contribute to renew competences and instruments with the final goal to improve public administration governance and management capacities. Particularly, in the transportation sector, several strategies have been adopted to assure a smooth transition to achieve the goal of decarbonised transport such as investments to promote modal shift toward public transport, cycling and shared modes, as well as funding programmes to incentivize the use of clean fuel vehicles (electric, Hydrogen, hybrid) and autonomous driving ones (AVs). The above-mentioned policies need to be carefully assessed and duly planned, in order to facilitate an effective transition toward green mobility without inefficiencies and other undesirable indirect counter-effects. This research programme aims at developing an overall framework to assess transport policies towards a zero-carbon emission transport at the regional scale, that would critically analyse emerging innovations, contextualizing them in the Italian context and would assess the contribution of innovations on



	overall sustainability (environmental, economic and social), including also an assessment of the associated risks.
Methods and techniques that will be developed and used to carry out the research	The research will be conducted in collaboration with the Technical Unit of the Ministry of Sustainable Infrastructure and Mobility (MIMS). To carry out this research the following methods and techniques will be developed: Life-cycle assessment and multi-criteria analyses, in order to assess the economic and environmental impact of investments in new vehicles and fuels; advanced discrete choice models, in order to simulate travellers' behaviour, attitudes and perceptions about innovative technologies and new modes of transport; traffic assignment models (micro and macro), in order to simulate the impacts of new vehicles (e.g. electric vehicles) on transport networks;
Educational objectives	The project will provide candidate with: knowledge of the transportation sector, particularly the impact assessment of technologies; methodological competences at both the theoretical and applied level; problem setting and solving capabilities; capabilities to interact with people of diverse background.
Job opportunities	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.
Composition of the research group	2 Full Professors 1 Associated Professors 2 Assistant Professors 2 PhD Students
Name of the research directors	Prof. Pierluigi Coppola

Contacts

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<https://www.mecc.polimi.it/ricerca/personale-docente/personale-docente/prof-pierluigi-coppola>

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	662.5 €
By number of months	6

National Operational Program for Research and Innovation	
Company where the candidate will attend the stage (name and brief description)	Ministero delle Infrastrutture e della Mobilità Sostenibile (MIMS)
By number of months at the company	6
Institution or company where the candidate will spend the period abroad (name and brief description)	Universidad de Cantabria
By number of months abroad	6

Additional information: educational activity, teaching assistantship, computer availability, desk availability, any other information
<p>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 5.401, 42.</p> <p>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.</p>