



PhD in INGEGNERIA MECCANICA / MECHANICAL ENGINEERING - 39th cycle

PNRR 117 Research Field: HEAVY-VEHICLE TIRE TESTING AND CHARACTERIZATION

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	Heavy vehicles are nowadays the most spread mean of transportation. The energy consumption and the road safety are the most critical aspects. These are some of the target of the Italian plan for recovery and resilience (PNRR) which aims at studying more sustainable and efficient transportation systems (PNRR Mission 3). A correct design and use of the tires can in fact reduce the energy request and can reduce the road accident by correctly identifying critical and hazardous conditions produced by wear, incorrect loading etc. Research aims at developing testing procedure as well as simulation models to identify heavy-vehicles tire working condition and generated contact forces.
Methods and techniques that will be developed and used to carry out the research	The research will be based on experimental campaign, whose methodology will be defined and assessed during the research period, and on simulation tool. In particular vehicle dynamics modelling and multibody approach will be adopted for the correct simulation of vehicle behavior in typical maneuvers. The produced results will then be use to drive the design of tire and advanced tires application focusing of the CO2 emission reduction and safety increase of heavy transportation systems.
Educational objectives	PhD graduate will be able to have a interdisciplinary knowledge of technologies and processes related to new paradigms in human assistance and empowerment, with a focus on tire and vehicle dynamics simulation and



	measurement.
Job opportunities	Skills and competences in the field are extremely interesting for all the companies involved in tire and vehicle industry. 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	1 Full Professors 0 Associated Professors 1 Assistant Professors 0 PhD Students
Name of the research directors	Prof. Federico Cheli, Prof. Michele Vignati

Contacts	
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For questions about scholarship/support, please contact phd-dmec@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	700.0 €
By number of months	6

National Operational Program for Research and Innovation	
Company where the candidate will attend the stage (name and brief description)	Prometeon Tyre Group
By number of months at the company	6
Institution or company where the candidate will spend the period abroad (name and brief description)	to be defined
By number of months abroad	6

Additional information: educational activity, teaching assistantship, computer availability, desk availability, any other information
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 5.707,13.

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.