

Prof. Federico Millo – Curriculum Vitae



Short Version

Federico Millo is a full professor of automotive internal combustion engines at Politecnico di Torino, Italy, where he also received his master's degree in mechanical engineering in 1989, before joining the faculty as a researcher assistant in 1991.

His research activity has been entirely focused on internal combustion engines, in particular on the analysis and on the diagnostic of the combustion process, on the use of alternative fuels, on pollutant emissions control in s.i. and diesel engines, on engine modelling and on the development of engine control strategies for conventional as well as for hybrid powertrains.

He has been principal investigator for several research projects with major OEMs such as General Motors, FCA, Honda and Ferrari.

He has published over 150 articles based off his research activity, most of which on international journals.

He has been nominated SAE (Society of Automotive Engineers) Fellow in 2016, being the first Italian from the Academia to be elevated to the role of Fellow.

Extended Version

EDUCATION & ACADEMIC CAREER

Federico Millo received his Master degree cum laude in Mechanical Engineering at Politecnico di Torino in 1989.

After a short experience in the automotive industry, in 1991 he joined the Faculty at Politecnico di Torino as a Researcher Assistant, and in 1998 he was appointed as Associate Professor of "Internal combustion engines", being then elevated to the role of Full Professor in 2016.

Since 1998 he has been giving lectures in the graduate course Automotive Internal Combustion Engines and since 2004 in the Pollutant Emissions Control graduate course offered to mechanical and automotive engineering students.

He has supervised 400+ graduate student theses and 20+ PhD theses.

Coordinator of the Specializing Master "Energy Management for Powertrains" at Politecnico di Torino since 2013.

Chairman of the Board of the PhD in "Energetics" at Politecnico di Torino since 2018.

The research activity of F. Millo has been focused on internal combustion engines, in particular on the analysis and on the diagnostic of the combustion process, on the use of alternative fuels, on pollutant emissions control in s.i. and diesel engines, on engine modelling and on the development of engine control strategies for conventional as well as for hybrid powertrains.

BIBLIOMETRIC INDICATORS AND PUBLICATIONS

(as of 24-01-2021)

Scopus - articles: 135 - citations: 1739 - H-Index: 21

Google Scholar - citations: 2526 H-Index: 26

50+ articles published on Q1 Journals

AWARDS AND OTHER RECOGNITIONS

Prof. Millo has been nominated SAE Fellow in 2016, being the 5th Italian (and the only Italian member from the academia) to be elevated to the grade of Fellow since the award was established in 1975.

Prof. Millo has been also the recipient of the following SAE awards:

- SAE Forest R. McFarland Award in 2013
- Excellence in Oral Presentation Award for presentation at SAE World Congress in 2011
- Excellence in Oral Presentation Award for presentation at SAE World Congress in 2007

F. Millo's research on the development of innovative energy management strategies for HEVs was recognized by an award of the prestigious "Honda Initiation Grant Europe". Prof. Millo's project "CAYMAN, Computer Aided development of energy MANAGEMENT systems for Hybrid Electric Vehicles" was awarded as the best powertrain research project from a European University for 2011. This is a 30.000 Euro prize through which Honda is aiming to fund the most promising research project of European Universities that can contribute to the automotive technology in the long term period of five to ten years.

Prof. Millo's team paper "Optimizing the Design of a Plug-in Hybrid Electric Vehicle from the Early Phase: an Advanced Sizing Methodology", received the Best Engineering Paper Award at the PACE Global Annual Forum 2014.

NATIONAL OR INTERNATIONAL FUNDING FROM COMPETITIVE GRANTS

EU Projects

2021-2024 EU HORIZON 2020 - PHOENICE - PHEv towards zero Emissions & ultimate ICE efficiency - Role: POLITO Research Unit Coordinator – Budget: 335kEuro

2012-2015 FP7 – ARTEMIS - Automotive pemfc Range extender with high Temperature Improved

meas and Stacks Role: POLITO Research Unit Coordinator – Budget: 90kEuro

National projects

2012-2013 PRIN 2009 Analysis of last generation biodiesel fuel blends effects on performance and emissions of automotive common rail small displacement diesel engines – Role: POLITO Research Unit Coordinator – Budget: 71kEuro

2009-2010 PRIN 2007 Methodologies for the optimization of the combustion process in high-speed diesel engines running with diesel/biodiesel fuel mixtures – Role: POLITO Research Unit Coordinator – Budget: 43kEuro

2005-2006 PRIN 2004 Methodologies for the optimization of multiple fuel injections in high-speed diesel engines – Role: POLITO Research Unit Coordinator – Budget: 71kEuro

Regional Projects (EU FESR)

2017-2020 Development of a new generation of HEVs - Role: POLITO Coordinator (5 RUs from 3 Depts.) – Budget: 500kEuro

2017-2020 CSS (Cylinder Set Strategy) - Role: POLITO Coordinator (5 RUs from 4 Depts.) – Budget: 650kEuro

2013-2015 Idea - Innovative Diesel engine applications - Role: POLITO Coordinator (10 RUs from 6 Depts.) – Budget: 1.300 kEuro

2011-2013 AMPERE Development of an innovative hybrid propulsion system for urban buses - Role: POLITO Coordinator (4 RUs from 4 Depts.) – Budget: 530 kEuro

2007-2010 SOFTECOP Sunflower raw Oil as a bio-Fuel Technology for Combined heat and Power plants: an application for district heating - Role: POLITO Coordinator (3 RUs from 2 Depts.) – Budget: 520 kEuro

COORDINATION OF RESEARCH AND TECHNOLOGY TRANSFER GROUPS AND PROJECTS

F. Millo has been responsible and principal investigator, over the last 15 years (2006-2020), for more than 50 research projects with major automotive companies, such as Ferrari, FIAT, General Motors, Lombardini, Magneti Marelli, Wartsila, managing a budget of more than 3 Million Euros and thus significantly contributing to funding both a substantial revamping of the experimental equipment of the Internal Combustion Engine Lab of the Energy Department of the Politecnico di Torino, and a remarkable number of Research Assistant positions. F. Millo is the coordinator and the founder of the e3 – Engines, Energy and Environment research group (<http://www.polito.it/engines>) at the Energy Department of the Politecnico di Torino, where he is currently heading a team made by 1 RTD-B and 1 RTD-A (Assistant Professors), 1 post-doc and 6 PhD students, all with grants funded by industries or by public institutions. Since 2011 prof. Millo has been appointed by the Rector of the Politecnico di Torino as the Academic Coordinator of the IARE (Institute for Automotive Research and Education), an Institute which was jointly established by General Motors and Politecnico di Torino, with the ambitious aim to develop and deliver world-class research and education with the strategic focus on future alternative powertrains, to reinvent the automobile for the 21st Century: in this role he has been coordinating since 2011 all the research activities carried out within the framework of the partnership agreement between Politecnico di Torino and General Motors, coordinating more than 12 different research groups from 6 different Departments of Politecnico. Moreover, in 2014 prof. Millo has promoted a new partnership agreement between Politecnico di Torino and FEV, with an immediate investment of more than 2 Million Euros from FEV to allow the creation of a new engine test facility inside the Internal Combustion Engine Lab of the Energy Department of the Politecnico di Torino, and a further expected investment of about 1 Million Euros for the next 8 years in research activities.

He has been also the scientific mentor of Powertech Engineering, a spin-off engineering consulting company of Politecnico di Torino, founded in 2007, which has now 20 full time employees and an annual turnover of more than 1,5 Million of Euro, with a wide portfolio of customers including primary OEMs such as Jaguar Land Rover, GM, Fiat, Renault, PSA, Hyundai.

He has also contributed in 2000-2001 to the amendment to the Directive 97/68/EC on Calculation of gaseous emissions from non road SI engines, and then, in 2005-2006, within the UN ECE GRPE group, to the development of the "WHTC" (World Harmonized Transient Cycle), a transient engine dynamometer cycle for heavy-duty engines, now used for engine emission type approvals worldwide.

EDITORIAL WORK AND CONFERENCES ORGANIZATION

F. Millo has been serving as main organizer for the following SAE Conferences in Turin since 2007:

1. Internat. TOPTEC "Optimizing Powertrains: future improvements through controls", 2007
2. Internat. Symposium "Facing the Challenge of Future CO₂ Targets: Impact on European Passenger Car Technologies ", 2009
3. Internat. Workshop "Developing Electric Vehicles in China: New technologies, Corporate Strategies, Public Policies", 2011
4. Internat. Symposium "TO ZEV: Highlighting the Latest Powertrain, Vehicle and Infomobility Technologies" , 2011
5. Internat. Symposium "The Convergence of Systems Towards Sustainable Mobility", 2012
6. 1st Internat. Conf. "CO₂ reduction for transportation systems", 2016
7. 2nd Internat. Conf. "CO₂ reduction for transportation systems", 2018
8. 3rd Internat. Conf. "CO₂ reduction for transportation systems", 2020

He has also been serving as a Session Organizer at the SAE Internat. World Congress in Detroit without interruption since 2006, managing the “0-D and 1-D Modeling and Numerics” Session, which includes about 50 peer reviewed papers every year, and coordinating a team of about 10 Session Chairpersons.

He has also been serving as a Session Organizer at the following Editions of the SAE NA International Conference on Engines & Vehicles (ICE):

- for the Session "Advanced Engine Systems" at the 9th ICE 2009 and at the 10th ICE 2011
- for the Sessions "Advanced Engine Systems" and "Hybrid Electric Vehicles" at the 11th ICE 2013
- for the Session “0-D and 1-D Modeling and Numerics” at the 12th ICE 2015
- for the Session Track “Engine Modeling and Diagnostics” at the 13th ICE 2017 and at the 15th ICE 2019

Prof. Millo has been Chairperson and Main Organizer of the following SIA (Société des Ingénieurs de l'Automobile) International Conferences:

- “Diesel Engines facing the competitiveness challenges”, 2010
- “The Spark Ignition Engine of the Future”, 2011
- “Diesel Powertrain”, 2012
- “The Spark Ignition Engine of the Future”, 2013
- “The clean compression ignition engine of the future”, 2014
- “The low CO2 spark ignition engine of the future and its hybridization, 2015
- “The clean compression ignition engine of the future”, 2016
- “The low CO2 spark ignition engine of the future and its hybridization, 2017

Turin, Febr 22nd 2021

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