

Giorgio Zamboni

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- Born in Genoa on April, 3rd 1965.
- Degree with honours in Mechanical Engineering in 1990 at the University of Genoa.
- Employed at Piaggio V.E. for two years (1992÷1993) in the Technical Division (two stroke engines development).
- PhD in Fluid Machines Engineering in 1997; post doc grant-holder in 1999 and 2000.
- Technician in DIME since 2001, being involved in different research programs, in particular through the management of engine test benches and the development of models for road vehicles emissions evaluation.
- National scientific qualification as Associate professor in Sector 09/C1 - Fluid machinery, energy systems and power generation (first round, year 2012).

- Since 1994 he follows research and teaching activities in the fields of Internal Combustion Engines (ICE) and of the environmental impact of energy systems; he is co-supervisor of about 35 graduation thesis.
- He is author of more than 60 scientific works, published in journals or presented at international and national Congresses.
- Reviewer for different international journals/engineer societies (Energy, Applied Energy, Atmospheric Environment, SAE International, International Journal of Sustainable Transportation, Journal of Traffic and Transportation Engineering, Sustainability, etc.).
- He worked/works in different research programmes, funded by the European Union (DIDTREAT, from 1996 to 1998, NICE, from 2004 to 2007, POWERFUL, from 2010 to 2014), by the Italian National Research Council and by the Italian Research Ministry, and in contracts with industries and public administrations (Fiat Research Centre, Ferrari, GM, UFI Innovation Center, Provincial Administration and Municipality of Genoa, Liguria Region, etc.).
- He is member of the National Expert Panel on Road Vehicles Emissions since 2003 and of the ERMES (European Research on Mobile Emission Sources) Group since 2012.
- He is member of the Associazione Tecnica dell'Automobile (ATA) since 1987 and of the Society of Automotive Engineers since 2013.

Research Area

He developed theoretical and experimental investigations related to different items, all concerning ICE and their energy consumption and environmental impact with particular reference to vehicle applications:

- Automotive turbocharged diesel engines control.
- Development and application of engine-turbocharger matching models.
- Analysis of mechanical losses and evaluation of ICE mechanical efficiency.
- Combustion analysis in Diesel ICE.
- Road vehicles exhaust emissions and fuel consumption evaluation under real driving conditions.

Current research projects

- Experimental investigations on Diesel ICE focused on fuel consumption and exhaust emissions reduction.

- Investigations on bio-fuels application to engines.
- Experimental and theoretical studies on powered two wheelers and heavy duty vehicles emissions and fuel consumption in real world operating conditions.

Teaching activities

Lecturer in charge of the course Applied Energy, Degree in Chemical Engineering (since a.y. 2013/2014).

Lecturer in charge of the course Advanced Propulsion Systems for Low Environmental Impact, Master Degree in Energy Engineering (starting from a.y. 2016/2017).

Lectures and experimental practices for different Courses:

- Internal Combustion Engines (Master Degree in Mechanical Engineering)
- Environmental friendly propulsion systems (Master Degree in Mechanical Engineering)
- Machines and systems for energy and propulsion (Degree in Mechanical Engineering)

Selected publications

1. Zamboni G., Marelli S., Marmorato G., Capobianco M. An experimental apparatus for testing biodiesels based on a CFR engine – Setup and validation with different methyl ester blends. *International Journal of Green Energy*, 2015, ISSN: 1543-5083, doi: 10.1080/15435075.2014.977439.
2. Zamboni G., André M., Roveda A., Capobianco M. Experimental evaluation of Heavy Duty Vehicle speed patterns in urban and port areas and estimation of their fuel consumption and exhaust emissions. *Transportation Research Part D: Transport and Environment*, vol.35, pp.1-10, March 2015, ISSN: 1361-9209, doi: 10.1016/j.trd.2014.11.024.
3. Zamboni G., Malfettani S., André M., Carraro C., Marelli S., Capobianco M. Assessment of heavy-duty vehicle activities, fuel consumption and exhaust emissions in port areas. *Applied Energy*, vol. 111, pp. 921-929, November 2013, ISSN: 0306-2619, doi: 10.1016/j.apenergy.2013.06.037.
4. Zamboni G., Prati M.V., Carraro C., Malfettani S., Costagliola M. A., Meccariello G., Marelli S., Capobianco M. Influence of Driving Cycles on Powered Two-Wheelers Emissions, Fuel Consumption and Cold Start Behavior. SAE 2013 World Congress & Exhibition, SAE Technical Paper 2013-01-1048, 2013, doi:10.4271/2013-01-1048. Published in SAE Special Publication 2340 "Emission Measurements and Testing, 2013", ISBN 978-0-7680-8006-3, p. 65-77, 2013.
5. Zamboni G., Capobianco M. Influence of high and low pressure EGR and VGT control on in-cylinder pressure diagrams and rate of heat release in an automotive turbocharged diesel engine. *Applied Thermal Engineering*, vol. 51, p. 586-596, March 2013, ISSN: 1359-4311, doi: 10.1016/j.applthermaleng.2012.09.040.
6. Zamboni G., Capobianco M. Experimental study on the effects of HP and LP EGR in an automotive turbocharged diesel engine. *Applied Energy* 94, pp. 117-128, 2012, ISSN: 0306-2619, doi:10.1016/j.apenergy.2012.01.046.
7. Prati M. V., Zamboni G., Costagliola M. A., Meccariello G., Carraro C., Capobianco M. Influence of driving cycles on Euro 3 scooter emissions and fuel consumption. *Energy Conversion and Management* 52, pp. 3327-3336, 2011, ISSN: 0196-8904, doi:10.1016/j.enconman.2011.06.004.
8. Zamboni G., Carraro C., Capobianco M. On-road instantaneous speed measurements on powered two-wheelers for exhaust emission and fuel consumption evaluation. *Energy* 36, pp. 1039-1047, 2011. ISSN: 0360-5442, doi:10.1016/j.energy.2010.12.004.
9. Zamboni G., Capobianco M., Daminelli E.. Estimation of road vehicle exhaust emissions from 1992 to 2010 and comparison with air quality measurements in Genoa, Italy. *Atmospheric Environment*, vol. 43, p. 1086-1092, 2009. ISSN: 1352-2310, doi: 10.1016/j.atmosenv.2008.11.014.