

EUROPEAN
CURRICULUM VITAE
FORMAT

PERSONAL INFORMATION

Name

GERARDO VALENTINO

Telephone

Office +39 081 7177131

E-mail

direttore@im.cnr.it

Nationality

Italian

WORK EXPERIENCE

2018/02 - present

Istituto Motori Director

1996 – 2018/01

Research Director at Istituto Motori, National Research Council
Via G. Marconi, 4 – 80125 Napoli (Italy)

1984 -1996

Researcher at Istituto Motori, National Research Council

EDUCATION AND TRAINING

1980

Mechanical Engineering M.D.
University of Naples "Federico II", Italy

SCIENTIFIC EMPLOYMENT

15/08/1995 –15/12/1995

Guest Researcher at "*IC Engines and Combustion* del Swiss Federal Institute of Technology" (ETH) of Zurich, Research Topic: "*Fluid mechanics problems of relevance to turbulence and combustion in generic flows as well in IC engines*"

10/01/1995 –09/02/1995

Guest Researcher at *Mechanical Engineering Laboratory of Agency of Industrial Science and Technology (AIST) of Japan*

01/01/1992 –30/12/1992

Guest Researcher at the *Wisconsin University, Engine Research Center, Madison, Wisconsin, USA*

EUROPEAN RESEARCH PROJECT

1993-1994

CEE Project, Jule II - JOU2-CT92-0174, Improvement of Turbulence Modeling for Internal Combustion Engines.

1997 - 2000

BRPR-CT96-0317, Advanced DI Diesel with High Pressure Injection Control Responsible Task of Istituto Motori

2006-2007

Bilateral Project CNR - TUBITAK , Experimental and Numerical air flow spray dynamics investigation in internal combustion engines

NATIONAL GOV. PROJECT

2001

CNR Agenzia 2000, Experimental Investigation on a fuel jet from a common rail injection system and on the air flow within the cylinder of a direct injection diesel engine

2003-2007

MIUR 6623, Advances control strategies of combustion within heavy-duty diesel engines for special applications, high performance and low emissions.

2009-2013

IND-2015, *Mobilità Sostenibile, MS01_0005 Programme*, Naval systems of new generation

INDUSTRY FUNDED PROJECT	
Responsibility	
Isotta Fraschini Motori, 2001-2002	Thermodynamic analysis of a heavy-duty diesel engine with the target of emissions EURO 4 and EPA TIER 2.
Isotta Fraschini Motori , 2004	Experimental and numerical investigation of the mixture formation within a heavy duty diesel engine
REDOIL , 2006-2007	Mixture of vegetal oil to supply as fuel and lubricant to internal combustion engines
Lombardini Motori, 2009	Experimental and Numerical methodology to develop low environmental impact diesel engines"
Isotta Fraschini Motori, 2008/2009	Experimental investigation to optimize the combustion system of a single cylinder heavy duty diesel engine equipped with a high pressure common rail injection system (IFM1700)".
GMPT Europe, 2011/2012	Investigation of HC dozer in CC position by means of optical techniques"
PROJECT REVIEWER	MIUR: Italian Ministry of Education, University and Research European Commission Expert

Publications

2018:

Marchitto, L., Tornatore, C., Costagliola, M.A., Iacobacci, A., Valentino, G., Effect of Water Injection on Fuel Efficiency and Gaseous and PN Emissions in a Downsized Turbocharged SI Engine, *Journal of Energy Engineering*, 144(4),04018044

Marchitto, L., Calabria, R., Tornatore, C., (...), Montillet, A., Valentino, G., Optical investigations in a CI engine fueled with water in diesel emulsion produced through microchannels, *Experimental Thermal and Fluid Science*, 95, pp. 96-103

Marchitto, L., Tornatore, C., Costagliola, M.A., Valentino, G., Impact of Ethanol-Gasoline Port Injected on Performance and Exhaust Emissions of a Turbocharged SI Engine, SAE Technical Paper 2018-01-0914

2017:

Cinzia Tornatore, Daniela Siano, Luca Marchitto, Arturo Iacobacci, Gerardo Valentino, Fabio Bozza, Water Injection to Enhance Performance and Emissions of a Turbocharged Gasoline Engine under High Load Condition. *SAE Int. J. Engines* 10(5):2319-2329, 2017, <https://doi.org/10.4271/2017-24-0062>

Tornatore, C., Siano, D., Marchitto, L., (...), Valentino, G., Bozza, F., Water Injection: a Technology to Improve Performance and Emissions of Downsized Turbocharged Spark Ignited Engines, *SAE International Journal of Engines*, 10(5)

Merola, S.S., Irimescu, A., Marchitto, L., Tornatore, C., Valentino, G., Effect of injection timing on combustion and soot formation in a direct injection spark ignition engine fueled with butanol, *International Journal of Engine Research* 18(5-6), pp. 490-504

2016:

Daniela Siano, Gerardo Valentino, Fabio Bozza, Arturo Iacobacci, Luca Marchitto (2016). A Non-Linear Regression Technique to Estimate from Vibrational Engine Data the Instantaneous In-Cylinder Pressure Peak and Related Angular Position. SAE Paper 2016-01-2178

Vincenzo De Bellis, Fabio Bozza, Daniela Siano, Gerardo Valentino (2016). A Modeling Study of Cyclic Dispersion Impact on Fuel Economy for a Small Size Turbocharged SI Engine. *SAE Int. J. Engines*, vol. 9 no.4 2066-2078, doi:10.4271/2016-01-2230

Irimescu A, Merola SS, Valentino G. (2015). Application of an entrainment turbulent combustion model with validation based on the distribution of chemical species in an optical spark ignition engine. *APPLIED ENERGY*, vol. 162, p. 908-923, ISSN: 0306-2619, doi:10.1016/j.apenergy.2015.10.136

Irimescu A, Marchitto L, Merola SS, Tornatore C, Valentino G (2015). Combustion process investigations in an optically accessible DISI engine fuelled with n-butanol during part load operation. *RENEWABLE ENERGY*, vol. 77, p. 363-376, ISSN: 0960-1481, doi:10.1016/j.renene.2014.12.029

Irimescu A, Merola SS, Tornatore C, Valentino G (2015). Development of a semi-empirical convective heat transfer correlation based on thermodynamic and optical measurements in a spark ignition engine. *APPLIED ENERGY*, vol. 157, p. 777-788, ISSN: 0306-2619, doi:10.1016/j.apenergy.2015.02.050

2015:

Irimescu, A., Marchitto, L., Merola, S.S., Tornatore, C., Valentino, G. Combustion process investigations in an optically accessible DISI engine fuelled with n-butanol during part load operation. *Renewable Energy* 77, pp. 363-376 <http://dx.doi.org/10.1016/j.renene.2014.12.029>

Merola, S., Irimescu, A., Tornatore, C., Marchitto, L., Valentino G. "Split Injection in a DISI Engine Fuelled with Butanol and Gasoline Analyzed through Integrated Methodologies," *SAE Int. J. Engines* 8(2):474-494, 2015, doi:10.4271/2015-01-0748.

Irimescu, A., Merola, S.S., Tornatore, C., Valentino, G. Development of a semi-empirical convective heat transfer correlation based on thermodynamic and optical measurements in a spark ignition engine. *Applied Energy*. Available online 4 March 2015. In Press, Corrected Proof. doi:10.1016/j.apenergy.2015.02.050.

2014:

Iannuzzi SE, Valentino G (2014). Comparative behavior of gasoline–diesel/butanol–diesel blends and injection strategy management on performance and emissions of a light duty diesel engine. *ENERGY*, doi: 10.1016/j.energy.2014.04.065

Merola S S., Tornatore C., Marchitto L., Iannuzzi S.E., Valentino G. Combustion process investigation in a high speed diesel engine fuelled with n-butanol diesel blend by conventional methods and optical diagnostics. *Renewable Energy* 64C (2014), pp. 225-237 DOI: 10.1016/j.renene.2013.11.017

Irimescu, A., Marchitto, L., Merola, S.S., Tornatore, C., Valentino, G. Evaluation of different methods for combined thermodynamic and optical analysis of combustion in spark ignition engines. *Energy Conversion and Management*, 87, pp. 914-927 doi:10.1016/j.enconman.2014.07.037

Merola S.S., Marchitto L., Tornatore C., Valentino G., Irimescu A. Optical characterization of combustion processes in a DISI engine equipped with plasma-assisted ignition system. *Applied Thermal Engineering* 69 (1-2), pp. 177-187. doi:10.1016/j.applthermaleng.2014.04.046

2013:

E.Mattarelli, S.Fontanesi, C.Rinaldini, G.Valentino, S.Iannuzzi, E.Severi, V.Golovitchev, Combustion optimization of a marine DI diesel engine. *SAE Technical Paper*, doi 10.4271/2013-24-0020

Gerardo Valentino, Stefano Iannuzzi, Esposito Felice Corcione, Experimental Investigation on the Combustion and Emissions of a Light Duty Diesel Engine Fuelled with Butanol-Diesel Blend. *SAE Technical Paper*, doi 10.4271/2013-01-0915

Valentino G., Esposito Corcione F, Iannuzzi S.E., Serra S., Experimental study on performance and emissions of a high speed diesel engine fuelled with n-butanol diesel blends under premixed low temperature combustion, *Fuel*, doi 10.1016/j.fuel.2011.07.035

S.S.Merola, S.Iannuzzi, L.Marchitto. C.Tornatore, G.Valentino, Multi-Wavelength spectroscopic Investigation of the Post-Injection Strategy Effect on the Fuel Vapor with the Exhaust Line of a Light Duty Diesel Engine fuelled with B5 and B30, *SAE Technical Paper* 10.4271/2013-01-2519

2012:

Gerardo Valentino, Felice E. Corcione, Stefano Iannuzzi, Simone Serra (2012) An experimental analysis on diesel/n-butanol blends operating in partial premixed combustion in a light duty diesel engine. *SAE Technical Paper* 2012-01-1127

Simona Silvia Merola, Cinzia Tornatore, Luca Marchitto, Gerardo Valentino, Felice Esposito Corcione, Experimental investigations of butanol-gasoline blends effect on the combustion process in a SI engine in International journal of energy and Environmental Engineering 2012, 3:6a Springer Open Journal

Simona Silvia Merola, Gerardo Valentino, Cinzia Tornatore, Luca Marchitto, In cylinder spectroscopic measurements of knocking combustion in a SI engine fuelled with butanol-gasoline blend in 3rd International Conference on Contemporary Problems of Thermal Engineering - CPOTE 2012, Gliwice (Poland)

Simona Silvia Merola, Cinzia Tornatore, Luca Marchitto, Gerardo Valentino, In-cylinder OH and CO₂ detection in SI engine through UV natural emission spectroscopy. Journal of KONES Powertrain and Transport, Vol. 19, No. 3 - 2012

Simona Silvia Merola, Cinzia Tornatore, Gerardo Valentino, Luca Marchitto, UV-Visible imaging and natural emission spectroscopy of premixed combustion in high swirl multi-jets compression ignition engine fuelled with diesel-gasoline blend. SAE Technical Paper 2012-01-1723

2011:

Valentino, G., Corcione, F.E., Iannuzzi, S., Serra, S. Experimental study on performance and emissions of a high speed diesel engine fuelled with n-butanol diesel blends under premixed low temperature combustion. Fuel, Vol. 92, No. 1, 2012, pp. 295-307. doi:10.1016/j.fuel.2011.07.035

Valentino, G., Corcione, F.E., Iannuzzi, S., Serra, S. Effects of premixed low temperature combustion of fuel blends with high resistance to auto-ignition on performances and emissions in a high speed diesel engine. SAE technical paper n.2011-24-0049, 2011

Corcione, F.E., Valentino, G., Tornatore, C., Merola, S.S., Marchitto, L. Optical Investigation of Premixed Low-Temperature Combustion of Lighter Fuel Blends in Compression Ignition Engines. SAE Technical Paper n.2011-24-0045, 2011.

Merola, S.S., Marchitto, L., Corcione, F.E., Valentino, G., Tornatore, C. Optical diagnostics of the pollutant formation in a CI engine operating with diesel fuel blends. SAE Technical Paper n.2011-37-0003, 2011

G. Valentino, L. Allocca, S. Iannuzzi, A. Montanaro: "Biodiesel/Mineral Diesel Fuel Mixtures: Spray Evolution and Engine Performances and Emissions Characterization", Energy 36 (2011) 3924-3932, Elsevier Ltd.