

Prof. Fabrizio Ponti
Full Professor at University of Bologna
Department of Industrial Engineering (DIN)
Via Seganti 103, 47121 Forlì, Italy

Dati Anagrafici:

Name:	Fabrizio
Last name:	Ponti
Place and date of birth:	Forli', November 21, 1971

CURRICULUM VITAE

- 1996** **Mechanical Engineering Degree** with points 100/100 cum laude at University of Bologna, 20th of March 1996.
Thesis dissertation on: "Model of the intake manifold of an internal combustion engine for control purposes", in collaboration with Magneti Marelli Powertrain
- 1998 - 1999** From September 1998 to June 1999 studied at Powertrain Control And Diagnosis Laboratory (PCAD Lab) of Ohio State University (USA), working with Prof. Giorgio Rizzoni on projects related to emissions control and powertrain management.
- March-2000 PhD in "Engineering of Machinery"**, with maximum evaluation, at Politecnico of Bari.
- 1 October 2000** Becomes **Assistant Professor** at the Engineering Faculty of the University of Bologna.
- 1 November 2002** Founded **Alma Automotive srl**, a University of Bologna Spin-off active in the field of engine testing and engine control, developing test bench facilities, HiL and RCP systems.
- 1 October 2007** Becomes **Associate Professor** at the Engineering Faculty of the University of Bologna.
- 1 October 2018** Becomes **Full Professor** at the Engineering Faculty of the University of Bologna, Campus of Forlì.

RESEARCH ACTIVITY

The research activity can be split into two main categories, the first one conducted at the beginning of the academic career in the field of machineries, and in particular studying diagnostic and control of internal combustion engines. The second part of the research activity, conducted in recent years, has been dedicated to the modelling and simulation of propulsion systems, like for example Solid Rocket Boosters, Aerospike engines and Plasma Thrusters.

Internal combustion engines.

1. In-cylinder pressure and indicated torque reconstruction using non-intrusive instrumentation for diagnosis and control purposes.
2. Engine modelling for diagnosis and control (torsional models, intake and exhaust models, combustion models, ...).
3. Misfire diagnosis for high performance and high number of cylinder engines.
4. In-cylinder pressure measurement systems development.
5. Low temperature combustion (RCCI, PPC, GDCI) control and management.

Aerospace propulsion.

6. Internal ballistic modelling for a Solid Rocket Booster.
7. 3D modelling of the grain burning surface regression.
8. Propellant casting process modelling finalized to the evaluation of anisotropies and non-uniformities of the produced grain.
9. Helicon Plasma Thrusters modelling and simulation.
10. Numerical Characterization of Plasma.
11. Aerospike modelling and performance prediction.

TEACHING ACTIVITY

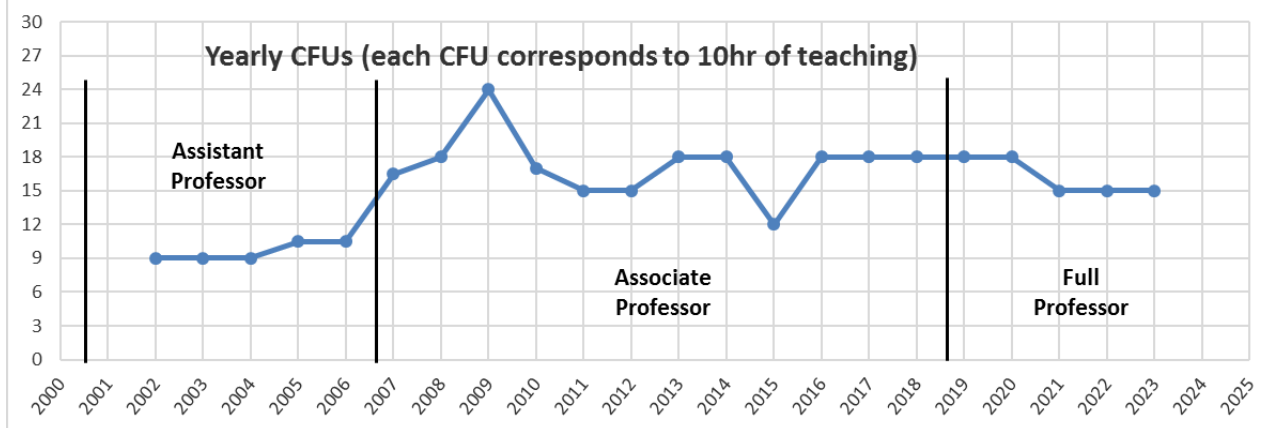
From 1999 Responsible for a short Course for the **Master in Vehicle Engineering** on “In-cylinder pressure and engine speed measurements” and on “Engine torque control and estimation”. The Master is held by University of Modena and Reggio Emilia and is sponsored by many automotive companies like Ferrari, Lamborghini and VM Motori.

From 2001 Responsible for the Courses reported in the following Table for Aerospace and Mechanical Engineering at the University of Bologna, and currently responsible for the courses in bold in the same Table and dealing with the following topics:

- Turbomachinery.
- Aeronautical Propulsion.
- Aerospace Propulsion.

The table and graph show the amount of CFU that has been given for each academic year since the beginning of his carrier.

Academic year	CdS	SSD	2002/2003	2003/2004	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013	2013/2014	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021	2021/2022	2021/2022	2022/2023
Sistemi di propulsione avanzati	LM Aer	ING-IND/07	9	6	6	6	6	6	6	9	6	6	6											
Aerospace Propulsion Systems	LM Aer	ING-IND/07												9	9		9	9	9	9	9			
Rocket Propulsion	LM Aer	ING-IND/07																				6	6	6
Fundamentals of Aerospace Engineering	LM Aer	ING-IND/07																			3	3	3	3
Propulsione Aerospaziale	L Aer	ING-IND/07				4.5	4.5	4.5	6	6		6	6	6	3	3	6	6	6	6	3	3	3	3
Turbomacchine	L Aer	ING-IND/08													3	6	3	3	3	3	3	3	3	3
Laboratorio di Propulsione	L Aer	ING-IND/07		3	3																			
Sistemi Energetici	L Aer	ING-IND/08								3	3													
Macchine LM	LM Mecc	ING-IND/08						6	6	6	4	3	3	3	3	3								
Sistemi Energetici LM	LM Mecc	ING-IND/09									4													
Total			9	9	9	10.5	10.5	16.5	18	24	17	15	15	18	18	12	18	18	18	18	18	15	15	15



2009-2015 He gave lectures within the “**Mechanical-Plant Engineer**” **Specialized Training Course** within the various editions of the **Master in "Design of Oil & Gas Plants"**, delivered by the University of Bologna.

2013-2014 He gave lectures on issues related to the attitude control of satellites in orbit as part of the **ESEO Lecture Courses**, under the patronage of the **ESA Education Office** and organized as part of the **European Student Earth Orbiter (ESEO) project**.

2014-2017 He has lectured on topics related to aeronautical and space propulsion as part of the **B2 Course on atmospheric and space flight**, delivered for students of the **Collegio Superiore of the University of Bologna**.

2014-2018 He has lectured on topics related to the design of the internal combustion engine, its experimentation and calibration as part of training courses organized by various private companies, including **Ferrari, Experis, Adecco**.

2016-2019 He has lectured on topics related to the maintenance of the internal combustion engine for ultralight aircraft, as part of training courses organized by various private companies, including **Isaers, OMA**.

2021 He has lectured on topics related to the maintenance of gas turbine engine for aircraft, as part of training courses organized by **Isaers**.

ACKNOWLEDGMENTS

- March-1999** Received the recognition of “**excellence in oral presentation**” at **SAE International Congress & Exposition**, for the paper "*Fast Algorithm for On-Board Torque Estimation*" authors: F. Ponti, G. Rizzoni, N. Cavina.
- 2002-04** Receives the recognition for **excellence in teaching activity** by the Rector of the University of Bologna.
- Apr. 2007** Recognition from **Combustion & Fuel committee** of **SAE** (Society of Automotive Engineers) for the Significant contribution to the Technical Program of the SAE 2007 World Congress.
- Nov. 2009** Recognition from **SAE** (Society of Automotive Engineers) for the Significant contribution to the Technical Program of the SAE 2009 Powertrains, Fuels & Lubricants Meeting.
- Oct. 2013** Nominated **Member** of the **Board of Associates** of the Internal Combustion Engine Division (ICED) of ASME (American Society of Mechanical Engineers).
- 2012-2018** Nominated **Session Chair** of the ASME Internal Combustion Engine Division Fall Conference within Track 5 – Instrumentation, Controls and Hybrids.
- 2013-19** **Scientific Manager of the Fluidodynamic Department of the CIRI** (Centro Interdipartimentale di Ricerca Industriale) Aeronautica of the University of Bologna.
- 2015-18** Receives the recognition for **excellence in teaching activity** by the Rector of the University of Bologna.
- 2016-2019** Nominated **Track Chair** of the ASME Internal Combustion Engine Division Fall Conference within Track 5 – Instrumentation, Controls and Hybrids.
- Oct. 2019** Receives the **Solid Rockets Best Paper Award** for the paper “*Numerical Simulation of Air Inclusions Using RoBoost Simulation Tool*” presented at the AIAA 2019 Propulsion and Energy Forum and Exposition, AIAA 2019-3959, Indianapolis.
- 2020-2023** Nominated **Track Chair** of the ASME Internal Combustion Engine Division Fall Conference within Track 4 – Powertrain and Emissions Systems.

GRANTS AND RESEARCH PROGRAMS

- 1996-2021** As part of agreements stipulated annually with **Magneti Marelli spa**, he conducts research aimed at developing methods for estimating the pressure inside the cylinders of an internal combustion engine, monitoring the quality of combustion in the various cylinders for purposes diagnostics, optimal injection control in spark ignition internal combustion engines, definition of the modeling of the intake and exhaust of an internal combustion engine aimed at the control, development and implementation of traction control strategies based on electronic control throttle and modeling of combustion in a diesel engine for control purposes. From the collaboration with Magneti Marelli he is **the author of 6 European Patents and 4 US Patents, as well as a series of international patents filed in Brazil, China and Japan, on the diagnosis of misfire and on the analysis of signals for engine control and turbo compressor.**
- 1998-2000** Within a European Grant ESPRIT “Very Robust transient exhaust gas emissions cOntrOl algorithms for a 12-cylinder high perforMance engine” funded by the **European Community**, in collaboration with **Lamborghini Automobili spa**, **EFI Technologies**, and **ENEA**, he conducts research aimed at developing control algorithms for the reduction of polluting emissions of a high-performance 12-cylinder engine .
- 1998-2023** As part of the agreements stipulated annually with **Ferrari Gestione Sportiva**, he conducts as Principal Investigator a research activity on the processing of signals. The activity focused, among other things, on engine control issues at the knock limit, on the modeling of the internal combustion engine for the optimization of the Power-Unit management aimed at minimizing the travel time of one lap track, on modeling the cylinder filling for torque management purposes.

Torsional models of the engine-vehicle assembly were also developed for the evaluation of the engine actuations impact on driveability. As part of the relationship, it was necessary to carry out track assistance activities, both through direct presence on the circuit and through remote assistance (Remote Garage). **Due to the confidentiality clauses associated with this type of collaboration, no publications have been produced on the topics involved in the research.**

- 2001-2002** He is involved in the Research Program PRIN 2001 on the topic “Studio teorico-sperimentale di sistemi di iniezione ad alta pressione e ad alta velocità di attuazione per motori diesel ad iniezione diretta” (“Theoretical and experimental study on the high pressure and high speed injection systems for Direct Injection diesel engines”).
- 2001-2012** As part of the agreements stipulated annually with **Gruppo Ferrari-Maserati**, he conducts a research activity on the diagnosis of misfires in high performance engines with a high number of cylinders.
- 2007-2008** He is involved in the Research Program PRIN 2007 on the topic “Algoritmi per il controllo e la diagnosi di motori a combustione interna” (Algorithms for the diagnosis and control of Internal Combustion Engines).
- 2011-2012** Within a collaboration with **Lamborghini**, he conducts a research activity to model the dynamic behavior of the powertrain in order to develop a Hardware In the Loop system.
- 2018-2019** He is scientific director of an agreement between CIRI Aeronautics and **Aernova Aerospace Industries (AAI)** for the development and testing of an automotive engine adapted to operation in the aeronautical field. The research activity carried out within this agreement aims at developing a low-cost engine with a power-to-weight ratio compatible with use on board an airplane for the ultra-light aircraft market.
- 2012-2022** He is scientific director of a three-year agreement and subsequent annual agreements stipulated with the **AVIO** company. As part of these conventions, he coordinates a research activity aimed at developing an internal ballistics simulator for solid propellant rockets. The simulator is characterized by the possibility of representing the non-isotropic regression of the combustion surface due to the effects related to the production process of the solid propellant.
- 2022** He is scientific director of an annual agreement stipulated with **Technology 4 innovation and propulsion (T4i)**. As part of these conventions, he coordinates a research activity aimed at developing fluid models for plasma within ionization chambers and magnetic nozzles of Helicon Plasma Thrusters.

SERVICE

- 2003-18** Takes the **Responsibility of the Traineeship Office** for the Aerospace Engineering at the University of Bologna.
- From 2018** Responsible for the **Class Time Table** definition of the Mechanical and Aerospace degrees at the University of Bologna – Campus of Forlì
- From 2018** **School Guidance Counselor** for the Industrial Engineering Department (DIN) of the University of Bologna
- From 2021** **Member of the Ph.D. Board** of the Ph.D. Programme Aerospace Science and Technology (DAST) active at the Campus of Forlì of the University of Bologna.
- 2002-2022** He serves as Tutor of **35** theses for Laurea Triennale and **56** theses for Laurea Magistrale of students in Mechanical and Aerospace engineering at Forlì Campus of University of Bologna. He granted the possibility to many students, thanks to the collaboration with many industrial and research partners, to develop their dissertation work inside important companies and research centers, like for example ESTEC (ESA), Avio, Magneti Marelli, Lamborghini, Ferrari and Maserati.
- 2008-2020** He has been Tutor of five Ph.D students for the Ph.D programme in “Meccanica e Scienza Avanzate dell’Ingegneria” and “DAST – Aerospace Science and Technology”, on the following topics:

Sviluppo di metodologie per la Stima in Tempo Reale delle Grandezze Indicate in Motori a Combustione Interna.

Modellazione Tridimensionale del Processo di Combustione di un Razzo a Propellente Solido.

Metodologie per la valutazione delle caratteristiche di un propellente solido.

Analysis, modeling and control of standard and alternative combustion strategies in a diesel engine.

Modeling of the ablation process of the thermal protections of a Solid Rocket Booster.

2020-2023 He is Tutor of three Ph.D students on the following topics:

Modeling and optimization of an aerospike engine for space applications.

Development of a Numerical Tool for the Simulation, Design and Optimization of a Helicon Plasma Thruster.

Numerical Characterization of Plasma Thrusters for Micro-satellites.

PATENTS AND PAPERS:

PATENTS

1. G. Serra, M. De Cesare, F. Ponti, ***Power train control method and system***, UNITED STATES PATENT, US8155846 B2, Date of publication 10/04/2012, CHINESE PATENT, CN 101050730 B, Date of publication 27/06/2012, EUROPEAN PATENT, EP 1843024 B1, Date of publication 26/07/2017, REPUBLICA FEDERATIVA DO BRASIL PATENT, PI 0701310 (A), Data de deposito 05/04/2007, Property of Magneti Marelli PowerTrain S.p.A.
2. S. Sgatti, C. Siviero, F. Ponti, ***Method for Detecting Misfiring in an Internal Combustion Engine by Analysing the Angular Acceleration of the Drive Shaft***, UNITED STATES PATENT, US 7024303 B2, Date of publication 04/04/2006, EUROPEAN PATENT, EP 1447655 B1, Date of publication 07/06/2006, REPUBLICA FEDERATIVA DO BRASIL PATENT, PI 0400637-2 B1, Data da concessao 17/03/2015, Property of Magneti Marelli PowerTrain.
3. G. Serra, M. De Cesare, F. Stola, F. Ponti, ***Method of estimating a combustion index and/or the indicated torque in a cylinder of a four stroke internal combustion engine with spontaneous mixture ignition***, EUROPEAN PATENT APPLICATION, EP 2431595 B1, Date of publication 04/01/2017, Property of Magneti Marelli S.p.A.
4. M. De Cesare, F. Covassin, F. Ponti, V. Ravaglioli, ***Method to control a supercharged internal combustion engine provided with a turbocharger by means of an estimation of the average power delivered by the turbine of the turbocharger***, UNITED STATES PATENT, US 9617931 B2, Date of publication 11/04/2017, EUROPEAN PATENT, EP 2930337 A1, Date of publication 14/10/2015, Property of Magneti Marelli S.p.A.
5. M. De Cesare, F. Stola, F. Ponti, V. Ravaglioli, ***Method to control the combustion noise generated by a spontaneously-started internal combustion engine***, EUROPEAN PATENT, EP 3222839 A1, Date of publication 27/09/2017, Property of Magneti Marelli S.p.A.
6. F. Stola, M. De Cesare, F. Ponti, V. Ravaglioli, ***Method for estimating MFB50 combustion index and instantaneous torque generated by cylinder of internal combustion engine***, UNITED STATES PATENT, US2017122839 (A1), Date of publication 04/05/2017, CHINESE PATENT, CN 106640374 A, Date of publication 10/05/2017, EUROPEAN PATENT, EP 3171006 A1, Date of publication 24/05/2017, JAPANESE PATENT, JP 2017101657 (A), Date of publication 08/06/2017, Property of Magneti Marelli S.p.A.
7. G. Serra, M. De Cesare, F. P. Ausiello, F. Ponti, ***Metodo e sistema di controllo di un motopropulsore***, BREVETTO PER INVENZIONE INDUSTRIALE, Riferimento WCM 429, Date of Publication 06/04/2006, Property of Magneti Marelli PowerTrain.

PAPERS

Author of 113 papers reported on Scopus (38 on Journal), received a total number of citations equal to 803, with an H-index equal to 14. The consistency and recognition of the scientific production allows to overcome all the metrics used by the Italian rules (ASN) to serve as a component of the selection committee for new positions within the University, reaching the following evaluations:

Number of Journal papers in the last 10 years: 26 (threshold 13)

Number of citations in the last 15 years: 477 (threshold 348)

H index relative to last 15 years: 12 (threshold 11)

JOURNALS

1. S. Mini, F. Ponti, A. Brusa, R. Bertacin, B. Betti, **Prediction of Tail-Off Pressure Peak Anomaly on Small-Scale Rocket Motors**, AEROSPACE, VOL. 10 ISSUE 2, 169, 2023, [DOI : 10.3390/aerospace10020169].
2. N. Souhair, M. Magarotto, R. Andriulli, F. Ponti, **Prediction of the Propulsive Performance of an Atmosphere-Breathing Electric Propulsion System on Cathode-Less Plasma Thruster**, AEROSPACE, VOL. 10 ISSUE 2, 100, 2023, [DOI : 10.3390/aerospace10020100].
3. N. Souhair, F. Ponti, M. Magarotto, D. Pavarin, **Different fluid strategies for the simulation of a Helicon Plasma Thruster**, CONTRIBUTIONS TO PLASMA PHYSICS, VOL. 63 ISSUE 2, 2023, Article Number e202200128, [DOI : 10.1002/ctpp.202200128].
4. G. Silvagni, V. Ravaglioli, S. Falfari, F. Ponti, V. Mariani, **Development of a Control-Oriented Ignition Delay Model for GCI Combustion**, ENERGIES, VOL. 15 ISSUE 17, 2022, Article Number 6470, [DOI : 10.3390/en15176470].
5. M. Magarotto, S. Di Fede, N. Souhair, S. Andrews, F. Ponti, **Numerical suite for cathodeless plasma thrusters**, ACTA ASTRONAUTICA, VOL. 197, 2022, Pages 126-138, [DOI : 10.1016/j.actaastro.2022.05.018].
6. F. Ponti, S. Mini, L. Fadigati, A. Annovazzi, E. Corti, D. Moro, **Theoretical Study on the Influence of Debondings on Solid Rocket Motor Performance**, INTERNATIONAL JOURNAL OF ENERGETIC MATERIALS AND CHEMICAL PROPULSION, VOL. 21, ISSUE 1, 2022, Pages 21-45, [DOI : 10.1615/IntJEnergeticMaterialsChemProp.2021039436].
7. J. Mecagni, A. Brusa, N. Cavina, F. Ponti, N. Silvestri, M. Cucchi, **Model-Based Exhaust Gas Temperature Control to Reduce the Mixture Enrichment at High Loads**, SAE INTERNATIONAL JOURNAL OF ENGINES, VOL. 16, ISSUE 3, 2022, [DOI : 10.4271/03-16-03-0020].
8. S. Mini, F. Ponti, A. Annovazzi, V. Ravaglioli, D. Moro, **A novel procedure to determine the effects of debonding on case exposure of solid rocket motors**, ACTA ASTRONAUTICA, VOL. 190, 2022, Pages 30-47, [DOI : 10.1016/j.actaastro.2021.09.016].
9. V. Ravaglioli, F. Ponti, G. Silvagni, D. Moro, F. Stola, M. De Cesare, **Investigation of Gasoline Partially Premixed Combustion with External Exhaust Gas Recirculation**, SAE INTERNATIONAL JOURNAL OF ENGINES, VOL. 15, ISSUE 5, 2021, [DOI : 10.4271/03-15-05-0033].
10. E. Majorana, N. Souhair, F. Ponti, M. Magarotto, **Development of a Plasma Chemistry Model for Helicon Plasma Thruster analysis**, Aerotecnica Missili & Spazio, 2021, 100, pp. 225-238, [DOI : 10.1007/s42496-021-00095-1].
11. N. Souhair, M. Magarotto, F. Ponti, D. Pavarin, **Analysis of the plasma transport in numerical simulations of helicon plasma thrusters**, AIP ADVANCES, VOL. 11, ISSUE 11, NOVEMBRE 2021, Article number 115016, [DOI : 10.1063/5.0066221].
12. N. Souhair, M. Magarotto, E. Majorana, F. Ponti, D. Pavarin, **Development of a lumping methodology for the analysis of the excited states in plasma discharges operated with argon, neon, krypton, and xenon**, PHYSICS OF PLASMAS, VOL. 28, ISSUE 9, 1 SEPTEMBER 2021, [DOI : 10.1063/5.0057494].
13. G. Silvagni, V. Ravaglioli, F. Ponti, E. Corti, L. Raggini, G. Scozza, F. Stola, M. De Cesare, **Development of a Predictive Pressure Waves Model for High-Pressure Common Rail Injection Systems**, SAE INTERNATIONAL JOURNAL OF ENGINES, VOL. 15, ISSUE 5, 2021, [DOI : 10.4271/03-15-05-0039].
14. F. Ponti, S. Mini, L. Fadigati, V. Ravaglioli, A. Annovazzi, V. Garreffa, **Effects of inclusions on the performance of a solid rocket motor**, ACTA ASTRONAUTICA, VOL. 189, 2021, Pages 283-297, [DOI : 10.1016/j.actaastro.2021.08.030].
15. F. Ponti, S. Mini, A. Annovazzi, **Influence of Nozzle Radiation on Solid Rocket Motors Tail-off Thrust**, INTERNATIONAL JOURNAL OF ENERGETIC MATERIALS AND CHEMICAL PROPULSION, VOL. 20, ISSUE 3, 2021, Pages 45-64, [DOI : 10.1615/IntJEnergeticMaterialsChemProp.2021038491].

16. V. Ravaglioli, F. Ponti, M. De Cesare, *Investigation of gasoline compression ignition for combustion control*, ASME - JOURNAL OF ENGINEERING FOR GAS TURBINE AND POWER, Volume 142, Issue 9, 2020, Article Number 091003, [DOI: 10.1115/1.4048055].
17. F. Ponti, S. Mini, A. Annovazzi, *Numerical evaluation of the effects of inclusions on solid rocket motor performance*, AIAA JOURNAL, VOL. 58, ISSUE 9, 2020, Pages 4028-4036, [DOI : 10.2514/1.J058735].
18. F. Ponti, V. Ravaglioli, M. De Cesare, *Real-time processing of engine acoustic emission for diesel injectors diagnostic and recentering*, ASME - JOURNAL OF ENGINEERING FOR GAS TURBINE AND POWER, Volume 140, Issue 9, 2018, Article Number 092806, [DOI: 10.1115/1.4039751].
19. V. Ravaglioli, F. Stola, M. De Cesare, F. Ponti, S. Sgatti, *Injection Pattern Design for Real Time Control of Diesel Engine Acoustic Emission*, SAE INTERNATIONAL JOURNAL OF COMMERCIAL VEHICLES, VOL. 10(1) : 308-316, 2017, [DOI : 10.4271/2017-01-0596].
20. V. Ravaglioli, F. Ponti, M. De Cesare, F. Stola, F. Carra, E. Corti, *Combustion Indexes for Innovative Combustion Control*, SAE INTERNATIONAL JOURNAL OF ENGINES, VOL. 10, ISSUE 5, 4 September 2017, [DOI : 10.4271/2017-24-0079].
21. F. Ponti, V. Ravaglioli, M. De Cesare, *Development of a methodology for engine performance investigation through double crankshaft speed measurement*, ASME - JOURNAL OF ENGINEERING FOR GAS TURBINE AND POWER, 1 October 2016, Volume 138, Issue 10, Article Number 102813, [DOI: 10.1115/1.4033066].
22. F. Ponti, V. Ravaglioli, M. De Cesare, *Estimation methodology for automotive turbochargers speed fluctuations due to pulsating flows*, ASME - JOURNAL OF ENGINEERING FOR GAS TURBINE AND POWER, Volume 137, Issue 12, 1 December 2015, Article number 121507, [DOI: 10.1115/1.4030839].
23. F. Ponti, V. Ravaglioli, M. De Cesare, F. Stola, *Torque and center of combustion evaluation through a torsional model of the powertrain*, ASME - JOURNAL OF DYNAMIC SYSTEMS, MEASUREMENT AND CONTROL, TRANSACTIONS OF THE ASME, Volume 137, Issue 6, June 2015, Article number 061005, [DOI: 10.1115/1.4029195].
24. F. Ponti, V. Ravaglioli, N. Cavina, M. De Cesare, *Diesel engine combustion sensing methodology based on vibration analysis*, ASME - JOURNAL OF ENGINEERING FOR GAS TURBINE AND POWER, TRANSACTIONS OF THE ASME, Volume 136, Issue 11, November 2014, Article number 111503, [DOI: 10.1115/1.4027363].
25. F. Ponti, V. Ravaglioli, E. Corti, D. Moro, M. De Cesare, *Non-Intrusive Methodology for Estimation of Speed Fluctuations in Automotive Turbochargers under Unsteady Flow Conditions*, SAE INTERNATIONAL JOURNAL OF ENGINES, VOL. 7, ISSUE 3, August 2014, [DOI: 10.4271/2014-01-1645].
26. F. Ponti, V. Ravaglioli, D. Moro, G. Serra, *MFB50 on-board estimation methodology for combustion control*, CONTROL ENGINEERING PRACTICE, VOL. 21, ISSUE 12, December 2013, Pages 1821-1829, [DOI: 10.1016/j.conengprac.2013.05.001].
27. N. Cavina, A. Cerofolini, E. Corti, F. Ponti, M. De Cesare, F. Stola, *Innovative techniques for on-board exhaust gas dynamic properties measurement*, SAE INTERNATIONAL JOURNAL OF ENGINES, VOL. 6, ISSUE 1, 2013, Pages 217-227, [DOI: 10.4271/2013-01-0305].
28. F. Ponti, V. Ravaglioli, G. Serra, F. Stola, *Instantaneous Engine Speed Measurement and Processing for MFB50 Evaluation*, SAE International Journal of Engines, Vol. 2, pp 235-244, March 2010, Print ISSN: 1946-3936, Online ISSN: 1946-3944, [DOI: 10.4271/2009-01-2747].
29. F. Ponti, G. Serra, S. Lupo, *Powertrain Torsional Model Development For On-Board Indicated Torque Estimation*, SAE International Journal of Passenger Cars – Electronic and Electrical Systems, Vol. 1, pp 446-456, April 2009, Print ISSN: 1946-4614, Online ISSN: 1946-4622, [DOI: 10.4271/2008-01-1017].
30. F. Ponti, L. Solieri, *Analysis of the Interactions Between Indicated and Reciprocating Torques for the Development of a Torsional Behavior Model of the Powertrain*, ASME - JOURNAL OF

ENGINEERING FOR GAS TURBINE AND POWER, 2008, Volume 130, Issue 6, 062803 (9 pages), [DOI: 10.1115/1.2939010].

31. F. Ponti, ***In-Cylinder Pressure Measurement: Requirements for On-Board Engine Control***, ASME - JOURNAL OF ENGINEERING FOR GAS TURBINE AND POWER, 2008, Volume 130, Issue 3, 032803 (9 pages), [DOI: 10.1115/1.2830549].
32. F. Ponti, ***Development of a Torsional Behavior Powertrain Model for Multiple Misfire Detection***, ASME - JOURNAL OF ENGINEERING FOR GAS TURBINE AND POWER, 2008, Volume 130, Issue 2, 022803 (13 pages), [DOI: 10.1115/1.2770486].
33. F. Ponti, ***Instantaneous Engine Speed Time-Frequency Analysis for On-Board Misfire Detection and Cylinder Isolation in a V12 High Performance Engine***, ASME - JOURNAL OF ENGINEERING FOR GAS TURBINE AND POWER, 2008, Volume 130, Issue 1, 012805 (9 pages), [DOI: 10.1115/1.2436563].
34. N. Cavina, F. Ponti, ***Engine torque non-uniformity evaluation using instantaneous crankshaft speed signal***, ASME - JOURNAL OF ENGINEERING FOR GAS TURBINE AND POWER, Volume 125, Issue 4, October 2003, Pages 1050-1058, [DOI: 10.1115/1.1581892].
35. N. Cavina, F. Ponti, ***Air Fuel Ratio Estimation Using In-Cylinder Pressure Frequency Analysis***, ASME - JOURNAL OF ENGINEERING FOR GAS TURBINE AND POWER, Volume 125, Issue 3, July 2003, Pages 812-819, [DOI: 10.1115/1.1563242].
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