

CURRICULUM Prof. Luca CASARSA

General Information

Birth: Palmanova (UD) il 18 Dicembre 1974
Citizenship: Italiana

Actual working position: From 2015 Associate Professor of “Sistemi per l’Energia e l’Ambiente (SSD ING-IND/09) at the University of Udine.

Work address: Prof. Ing. Luca Casarsa
Dipartimento di Politecnico di Ingegneria e Architettura
Università degli Studi di Udine
Via delle Scienze, 206
I-33100 Udine (Italy)
Telefono +39 0432 55 80 10
Fax +39 0432 55 82 51
Cellulare +39 366 6815561
E-mail luca.casarsa@uniud.it

2 Studies

- Phd course in “Energetica” obtained in June 2003 from the University of Udine and in collaboration with the Von Karman Institute for Fluid Dynamics, Belgium, with a thesis entitled “Aerodynamic Performance Investigation of a Fixed Rib-roughened Cooling Passage”.
- “*Post-graduate diploma course*” at the Turbomachinery and Propulsion Department of the Von Karman Institute for Fluid Dynamics, Belgium, July 2001.
- Laurea cum Laude in Mechanical Engineering from the University of Udine, March 1999.

3 Research activity

The research activity of Prof. Casarsa mainly concerns the experimental analysis of transport mechanisms in turbulent flows inside flow machineries and their components, with particular focus on gas turbine blades cooling systems, or inside geometries of more general interest. The experimental activity also concerns the development of novel non-intrusive techniques for aero and thermal analysis. Beside this, Prof. Casarsa research activity was also dedicated to the numerical simulations of compressible, unsteady and reactive flows, the analysis of energy systems for micro-CHP applications, and the development of cooling devices with CO₂ close to supercritical conditions.

3.1 Founded research project

Professor Casarsa has participated to the following founded research projects.

- 2002 - Progetto Giovani Ricercatori – financed by MURST for the analysis of pulsed combustion systems- principal investigator
- 2003-2005 – Project PRIN-2003 “Metodologie multiscala per la simulazione di flussi di interesse industriale”, participant.
- 2008-2010 Project PRIN-2007 “Analisi sperimentale delle prestazioni aerodinamiche di canali di raffreddamento interno per bordo d'uscita di palettature di turbina a gas”, participant.

- 2010-2012 Project "NGShiP" - POR-FESR 2007-2013 – “Natural Gas for Ship Propulsion”, participant.
- 2010-2012 Project ENERPLAN (co-founded by “Ministero dell'Ambiente e della tutela del Territorio e del Mare”), participant
- 2013-2015 Project PRIN 2010-11 “INSIDE- INdagine aerotermica sugli Stadi di turbIna raffreddati; Design ottimizzato ed analisi spErimentale”, participant and responsible of a reaserch unit

3.2 Applied research project on collaboration with industrial partners (limited to the most significant)

- 2011-2017 Electrolux spa design and development of test rig for home applince perfromances testig. Different projects for total ammout of 270.000 euro.
- 2012-13 Maschio e Gaspardo SPA, experimental analysis and opimization of a pneumatic seeder, 41.500 euro.
- 2013 Intermek, development of an anemometer for wind turbines, 5.000 euro.
- 2013-14 Pelfa Group, screw hydraulic turbine performace optimizations, 45.000
- 2014, Wartsila, anlaysis of combustin process in 2-stroke dual fuel naval engines, 42.000 euro
- 2017, Wartsila, development of new data acquisition platform for ICE test chambers, 30.000 euro.
- 2020-22, Wartsila, development of innovative cooling designs for ICE components, 20.000 euro.
- 2022, Accierie di Verona, Gruppo Pittini, heat recovery from a casting plant, 8.000 euro.

3.3 National and International Collaborations

- Università di Bergamo, prof.ssa Giovanna Barigozzi
- Università di Firenze, prof. Bruno Facchini
- Università di Trieste, prof. Diego Micheli
- Politecnico di Genova, prof. Daniele Simoni
- Tu-Delft, Delft Technical Univeristy, The Netherlands, prof.
- ITLR, University of Stuttgart, Germany, prof Jens von Wolsverdorf
- Von Karman Insitute for fluid Dynamics, Belgium, porf. Tony Arts
- SIEMENS Gas Turbines, Lincoln, UK.
- Wartsila Oy, Finland
- Trumpf GmbH, Germany

3.4 Research Fellows

From September 2001 Prof. Casarsa is fellow of “Associazione Termotecnica Italiana- ATI”

3.5 Scientific review activity

Prof. Casarsa works as reviewer for the following international journals

- International Journal of Heat and Fluid Flow
- Experimental Thermal and Fluid Science
- Applied Thermal Engineering
- Physics of Fluids
- International Journal of Heat and Mass Transfer
- Energies
- Journal of Turbomachinery

4 Teaching activity

He is in charge of the courses “Flow machinery”, “Experimental analysis of flow machinery and energy systems”, and “Renewable Energies” for the Engineering coursers at the Polytechnical Department of Engineering and Architecture at Udine University.

From 2018, Prof Casarsa give the lecture “Advanced measurement techniques for thermo-fluid dynamics” for the students of the PhD course in “Scienze dell’Ingegneria Energetica e Ambientale”.

Prof Casarsa, since 2005, has been the advisor for more than 50 students for their BS and MS graduation projects. He has laso served as tutor for the rearsch activity of 6 PhD candidates in the PhD courses in “ and “Scienze dell’Ingegneria Energetica e Ambientale”.