Pietro Giannattasio
Full professor in Mechanical Engineering
Dipartimento Politecnico di Ingegneria e Architettura
Università degli Studi di Udine

1. Education and career

Master's Degree	July 1985, Mechanical Engineering, University of Bari, Italy, thesis *High -accuracy solutions of the Navier-Stokes equations in a driven-cavity*, grade 110/110 with honours.
Work experience	September 1985 – September 1989; at R&D Division of Officine Termotecniche Breda in Bari (later Tecnars s.r.l) he carried out industrial research activities in the fields of heat transfer, fluid dynamics and combustion.
Assistant professor	October 1989 – August 2000, assistant professor of Fluid Machinery (ssd ING-IND/08) at the University of Udine.
Associate professor	September 2000 – November 2016, associate professor of Fluid Machinery at the University of Udine.
Full professor	December 2016 – today, full professor of Fluid Machinery at the University of Udine, Dipartimento Politecnico di Ingegneria e Architettura (DPIA).

2. Research activities

Research topics

- Numerical simulation of incompressible viscous flows (1990-1996)
- Numerical simulation of unsteady compressible flows in engine pipe systems (1990-1994)
- Modeling of combustion in Diesel engines (1992-98)
- Theoretical, numerical and experimental analysis of the compressor surge and related active and passive control systems (1998-2006)
- Numerical and experimental study of pulsating combustion (2002-2009)
- Experimental analysis of flow fields in fluid machines and their components by means of the PIV technique (2003-2013)
- Double-wake models for the numerical simulation of vertical-axis wind turbines (2009-2015);
- Use of LNG as naval fuel (2011-2016)
- Measurements and numerical simulation of aero-acoustic fields produced by axial fans and contra-rotating open rotors for aircraft propulsion (2011-2021)
- Models of flame propagation in spark-ignition engines (2016-2019)
- Calculation of noise emissions in airport areas based on web data (2017 – today)
- Modeling of icing phenomena on aircraft surfaces (2020 – today)
- Modeling of flame kernel growth in SI engines and of combustion in HCCI engines (2022 – today)

Scientific publications	25 articles published in international journals 12 publications in international conference proceedings 20 publications in national conference proceedings 1 book chapter 1 international patent (Europe + USA)
Research projects	PRIN 2003, principal investigator for the University of Udine; Regional project POR-FESR 2007-2013, principal investigator; European project NEEDED, call HORIZON-CL5-2022-D5-01 , 2023-2026, principal investigator for the University of Udine; PRIN 2007, member of the research group of the University of Udine; PRIN 2010, member of the research group of the University of Udine; Project Piano Energia ENERPLAN, PdL-5 e PdL-8, 2011-2012, member of the research group of the University of Udine; Project TRIM – Tecnologia e Ricerca Industriale per la Mobilità Marina, 2014-2017, member of the research group of the University of Udine; European project IMPACT, Clean Sky 2, JTI-CS2-2019-CfP10-LPA-01-80, 2020-2023, member of the research group of the University of Udine.
Research contracts with private companies	Rhoss SpA, Oesse Srl, Wartsila Italia SpA, Vitrociset SpA, Nuovo Pignone Tecnologie Srl.
Reviewer for journals and conferences	Acta Mechanica, Experimental Thermal and Fluid Science, International Journal of Heat and Mass Transfer, Proceedings of the IMechE Part G, Journal of Aerospace Engineering, Wind Energy, Journal of Hydraulic Research, Heat Transfer Engineering, International Journal of Turbomachinery Propulsion and Power, ASME Turbo Expo 2012, SAE International, ATI 2012, 2019, 2022.

3. Teaching activities

Teaching courses	*Design of Turbomachinery* (Mechanical Engineering, 2000/01-2022/23), *Internal Combustion Engines* (Mechanical Engineering, 2004/05-2022/23), *Combustion* (Engineering for Environment and Energy, Mechanical Engineering, 2011/12-2022/23), *Dynamics and Control of Fluid Machines* (Industrial Innovation Engineering, 2007/08-2008/09).
M.Sc. theses	supervisor/co-supervisor of about 60 theses.
PhD programs	Board member of PhD programs *Energy* (XVI and XVII cycle), *Chemical and Energy Technologies* (from XVIII to XXVII cycle) and *Environmental and Energy Engineering Sciences* (from XXVIII to XXXV cycle), University of Udine. Supervisor of 7 PhD students. Since 2018 he has been holding a short PhD course titled *Transport of species, momentum and energy in reacting flows.*

4. Organizational activities

- 2003-2011, board member of *Centro Interdipartimentale dei Servizi Bibliotecari di Scienze (CISB)*, University of Udine.
- 2005-2007, board member of *Commissione Tirocini* of the Mechanical Engineering degree course, University of Udine.
- 2006-2012, President of the *Commissione Comunicazione* of the Engineering Faculty, University of Udine.
- 2006-2011, board member of the *Giunta nazionale dei Professori di Macchine a Fluido e di Sistemi per l'Energia e l'Ambiente*, as representative elected by the Italian associate professors.
- 2007-2009, board member of the educational commission of the *Coordinamento della Meccanica Italiana*.
- 2013-2019, board member of the educational and quality commissions of the Engineering for Environment and Energy degree course, University of Udine.
- 2015-2019, board member of the *Commissione per l'elaborazione del Piano Strategico Dipartimentale (PSD)* in the framework of the *Piano Strategico di Ateneo (PSA)*. Appointed manager of the PSD for the Department (DPIA) in 2016.
- 2019 - today, President of the Mechanical Engineering degree course, University of Udine.

Udine, 29.05.2023 Prof. Pietro Giannattasio