Maurizio Quadrio

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Maurizio Quadrio is Full Professor in the S.S.D. of ING/IND-06 – Fluid Dynamics at Politecnico di Milano and Mercator Fellow at the Karlsruhe Institute of Technology. He graduated in Aeronautical Engineering, then obtained a PhD in Aerospace Engineering in 1993 and was subsequently faculty at Politecnico di Milano, formerly (since 1996) as Assistant Professor and later (from 2005 to 2015) as Associate Professor. MQ presently teaches *Fluid Dynamics* to undergraduated students in the Aerospace Engineering program, and *Turbulence: Physics and Modelling* to master students in the Aeronautical Engineering Master program. Since 1995 MQ has been supervisor of 4 batchelor (laurea triennale) theses, and 102 master (laurea magistrale/specialistica) theses. MQ is a faculty member in the PhD program in Aerospace Engineering since 2004, and has supervised the PhD studies of Davide Pirrò (2005): "Flow on streamwise-curved surfaces: forced transition and turbulence"; Fulvio Martinelli (2009): "Feedback control of turbulent wall flows"; Luca Galantucci (2011): "Quantistic turbulence in superfluid helium"; Wenxuan Xie (2014): "Turbulence skin-friction reduction by traveling waves: a DNS study"; Jacopo Banchetti: Spanwise-forcing turbulent drag reduction: towards aeronautical applications (concludes 2020); Alessandro Chiarini: anisotropic turbulent flows (concludes 2022); Andrea Schillaci: machine-learning for health-related applications (concludes 2022).

MQ has a vigorous research activity and is involved in several international collaborations. He serves as referee for many scientific journals of his field. He has authored or co-authored 183 scientific publications (among which 56 peer-reviewed international journal papers). According to Scopus (March 2020), his h-index is 21 with a total citation number of 1507. MQ has spent a sabbatical leave in 2003 at Univ. Western Ontario, Canada with J.M.Floryan, and in 2010/2011 at the Ecole Polytechnique, Paris, France with P.J.Schmid. Since 2015 he has been appointed Mercator Fellow at the Karlsruhe Institute of Technology. MQ is frequently invited to give scientific seminars in Italy and abroad, is consulted for the evaluation of national and international scientific projects, and often serves as opponent in PhD committee across Europe.

MQ directs the Flow Control Laboratory of the Department of Aerospace Science and Technologies, PoliMi, has served in the Department Steering Committee (2009-2010; 2017-2019), and has chaired its Scientific Committee (2017-2019. He serves in the Organizing Committee of the next ICTAM 2020+1 to be held in Milan, and is co-chair of its "Boundary Layer" session. He had a leading role in a large collaborative EU-China H2020 project (DRAGY) on drag reduction in aeronautics. He serves in the Advisory Committee of the International Symposium of Turbulence and Shear Flow Phenomena (TSFP), in the Editorial Board of the journal *Flow Turbulence and Combustion*. In 2020 he has been appointed to serve for six years in the European Fluid Mechanics Conference Committee.

In his research activity MQ leverages numerical and experimental techniques to investigate turbulent wall flows, and to develop novel methods for reducing the turbulent skin-friction drag. Early in his career, MQ became a specialist of the Direct Numerical Simulation (DNS) technique for incompressible turbulent flows, and developed, in collaboration with P. Luchini, an innovative mixed-discretization parallel computer code (P. Luchini & M. Quadrio, J. Comp. Phys. 2006). A few years ago, MQ became the leading world expert in the spanwise-forcing techniques for the reduction of turbulent skin-friction drag, by discovering a very promising strategy (M. Quadrio, P. Ricco & C. Viotti, J. Fluid Mech. v.627, 2009), then giving it experimental confirmation (F. Auteri, A. Baron, M. Belan, G. Campanardi & M. Quadrio, Phys. Fluids v.22, 2010) and theoretical interpretation (M. Quadrio & P. Ricco, J. Fluid Mech. v.667 2011), with later research addressing important practical issues related to its deployment in real- world applications. More recently, MQ has taken up the (numerical and experimental) study of the flow inside the human nasal cavities. He is developing a computer-assisted procedure for supporting the ear-nose-throat specialists in the surgical treatment of nasal breathing difficulties, and is leading an informal multidisciplinary research community on the topic.