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Current Position

Feb, 2018 - present	Associate Professor in Fluid Dynamics (ING-IND/06) Department of Mechanical and Aerospace Engineering (DIMEAS) Politecnico di Torino, Torino, Italy
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Current Research Interests

- Cardiovascular fluid dynamics: multiscale modeling and CFD analysis
- Space medicine and gravitational physiology
- Spatio-temporal analysis of turbulent and transitional flows

Publications

Journal Papers

- [J1] K. Calò, A. Guala, V. Mazzi, M. Lodi Rizzini, L. Dux-Santoy, J. Rodriguez Palomares, S. Scarsoglio, L. Ridolfi, D. Gallo, and U. Morbiducci, "Pathophysiology of the ascending aorta: Impact of dilation and valve phenotype on large-scale blood flow coherence detected by 4D flow MRI," *Computer Methods and Programs in Biomedicine*, vol. 255, p. 108369, 2024. doi: [10.1016/j.cmpb.2024.108369](https://doi.org/10.1016/j.cmpb.2024.108369).
- [J2] A. Saglietto, J. J. M. Tripoli, F. Zwanenburg, G. J. Biessels, G. M. De Ferrari, M. Anselmino, L. Ridolfi, and S. Scarsoglio, "Role of the vessel morphology on the lenticulostriate arteries hemodynamics during atrial fibrillation: A CFD-based multivariate regression analysis," *Computer Methods and Programs in Biomedicine*, vol. 254, p. 108303, 2024. doi: [10.1016/j.cmpb.2024.108303](https://doi.org/10.1016/j.cmpb.2024.108303).

- [J3] V. N. Bhargav, N. Francescato, H. Mettelsiefen, A. Y. Usmani, S. Scarsoglio, and V. Raghav, "Spatio-temporal relationship between three-dimensional deformations of a collapsible tube and the downstream flowfield," *Journal of Fluids and Structures*, vol. 127, p. 104122, 2024. doi: [10.1016/j.jfluidstructs.2024.104122](https://doi.org/10.1016/j.jfluidstructs.2024.104122).
- [J4] D. Canova, S. Roatta, A. Saglietto, S. Scarsoglio, N. R. Gianotto, A. Piccotti, G. M. De Ferrari, L. Ridolfi, and M. Anselmino, "A quantitative assessment of cerebral hemodynamic perturbations associated with long R-R intervals in atrial fibrillation: A pilot-case-based experience," *Medicina*, vol. 60(4), p. 531, 2024. doi: [10.3390/medicina60040531](https://doi.org/10.3390/medicina60040531).
- [J5] M. Fois, A. Diaz-Artiles, S. Y. Zaman, L. Ridolfi, and S. Scarsoglio, "Linking cerebral hemodynamics and ocular microgravity-induced alterations through an in silico-in vivo head-down tilt framework," *npj Microgravity*, vol. 10, p. 22, 2024. doi: [10.1038/s41526-024-00366-8](https://doi.org/10.1038/s41526-024-00366-8).
- [J6] D. Perrone, J. G. M. Kuerten, L. Ridolfi, and S. Scarsoglio, "Spatiotemporal evolution of particle puffs in transitional channel flow," *Physics of Fluids*, vol. 35(12), p. 124110, 2023. doi: [10.1063/5.0178426](https://doi.org/10.1063/5.0178426).
- [J7] A. Saglietto, S. Scarsoglio, F. Tripoli, J. J. M. Zwanenburg, G. J. Biessels, G. M. De Ferrari, L. Ridolfi, and M. Anselmino, "Atrial fibrillation hemodynamic effects on lenticulostriate arteries identified at 7-tesla cerebral MRI," *Clinical and Translational Medicine*, vol. 13, p. e1367, 2023. doi: [10.1002/ctm2.1367](https://doi.org/10.1002/ctm2.1367).
- [J8] S. Scarsoglio, M. Fois, and L. Ridolfi, "Increased hemodynamic pulsatility in the cerebral microcirculation during parabolic flight-induced microgravity: A computational investigation," *Acta Astronautica*, vol. 211, p. 344–352, 2023. doi: [10.1016/j.actaastro.2023.06.018](https://doi.org/10.1016/j.actaastro.2023.06.018).
- [J9] G. Iacobello, S. Chowdhuri, L. Ridolfi, L. Rondoni, and S. Scarsoglio, "Coherent structures at the origin of time irreversibility in wall turbulence," *Communications Physics*, vol. 6(1), p. 91, 2023. doi: [10.1038/s42005-023-01215-y](https://doi.org/10.1038/s42005-023-01215-y).
- [J10] A. Saglietto, S. Scarsoglio, D. Canova, G. M. De Ferrari, L. Ridolfi, and M. Anselmino, "Beat-to-beat finger photoplethysmography in atrial fibrillation patients undergoing electrical cardioversion," *Scientific Reports*, vol. 13, p. 6751, 2023. doi: [10.1038/s41598-023-33952-z](https://doi.org/10.1038/s41598-023-33952-z).
- [J11] D. Perrone, J. G. M. Kuerten, L. Ridolfi, and S. Scarsoglio, "Investigating the magnitude and temporal localization of inertial particle mixing in turbulent channel flows," *International Journal of Multiphase Flow*, vol. 165, p. 104489, 2023. doi: [10.1016/j.ijmultiphaseflow.2023.104489](https://doi.org/10.1016/j.ijmultiphaseflow.2023.104489).
- [J12] K. Calò, D. Gallo, A. Guala, M. Lodi Rizzini, L. Dux-Santoy, J. Rodriguez Palomares, S. Scarsoglio, L. Ridolfi, and U. Morbiducci, "Network-based characterization of blood large-scale coherent motion in the healthy human aorta with 4D flow MRI," *Transactions on Biomedical Engineering*, vol. 70(3), p. 1095–1104, 2023. doi: [10.1109/TBME.2022.3209736](https://doi.org/10.1109/TBME.2022.3209736).
- [J13] M. Fois, L. Ridolfi, and S. Scarsoglio, "Arterial wave dynamics preservation upon orthostatic stress: a modelling perspective," *Royal Society Open Science*, vol. 10(3), p. 221257, 2023. doi: [10.1098/rsos.221257](https://doi.org/10.1098/rsos.221257).
- [J14] S. Scarsoglio, A. Saglietto, F. Tripoli, J. J. M. Zwanenburg, G. J. Biessels, G. M. De Ferrari, M. Anselmino, and L. Ridolfi, "Cerebral hemodynamics during atrial fibrillation: Computational fluid dynamics analysis of lenticulostriate arteries using 7T high-resolution magnetic resonance imaging," *Physics of Fluids*, vol. 34(12), p. 121909, 2022. doi: [10.1063/5.0129899](https://doi.org/10.1063/5.0129899).
- [J15] D. Perrone, L. Ridolfi, and S. Scarsoglio, "Visibility analysis of boundary layer transition," *Physics of Fluids*, vol. 34(10), p. 104104, 2022. doi: [10.1063/5.0106455](https://doi.org/10.1063/5.0106455).
- [J16] M. Anselmino, S. Scarsoglio, L. Ridolfi, G. M. De Ferrari, and A. Saglietto, "Insights from computational modeling on the potential hemodynamic effects of sinus rhythm versus atrial fibrillation," *Frontiers in Cardiovascular Medicine*, vol. 9, p. 844275, 2022. doi: [10.3389/fcvm.2022.844275](https://doi.org/10.3389/fcvm.2022.844275).
- [J17] M. Fois, L. Ridolfi, and S. Scarsoglio, "In silico study of the posture-dependent cardiovascular performance during parabolic flights," *Acta Astronautica*, vol. 200, pp. 435–447, 2022. doi: [10.1016/j.actaastro.2022.08.018](https://doi.org/10.1016/j.actaastro.2022.08.018).

- [J18] M. Fois, S. V. Maule, M. Giudici, M. Valente, L. Ridolfi, and S. Scarsoglio, "Cardiovascular response to posture changes: Multiscale modeling and in vivo validation during head-up tilt," *Frontiers in Physiology*, vol. 13, p. 826989, 2022. doi: [10.3389/fphys.2022.826989](https://doi.org/10.3389/fphys.2022.826989).
- [J19] A. Saglietto, M. Fois, L. Ridolfi, G. M. De Ferrari, M. Anselmino, and S. Scarsoglio, "A computational analysis of atrial fibrillation effects on coronary perfusion across the different myocardial layers," *Scientific Reports*, vol. 12, p. 841, 2022. doi: [10.1038/s41598-022-04897-6](https://doi.org/10.1038/s41598-022-04897-6).
- [J20] D. Perrone, J. G. M. Kuerten, L. Ridolfi, and S. Scarsoglio, "Network analysis of Reynolds number scaling in wall-bounded lagrangian mixing," *Physical Review Fluids*, vol. 6(12), p. 124501, 2021. doi: [10.1103/PhysRevFluids.6.124501](https://doi.org/10.1103/PhysRevFluids.6.124501).
- [J21] S. Scarsoglio and L. Ridolfi, "A review of multiscale 0D-1D computational modeling of coronary circulation with applications to cardiac arrhythmias," *Reviews in Cardiovascular Medicine*, vol. 22(4), pp. 1461–1469, 2021. doi: [10.31083/j.rcm2204150](https://doi.org/10.31083/j.rcm2204150).
- [J22] K. Calò, D. Gallo, A. Guala, J. Rodriguez Palomares, S. Scarsoglio, L. Ridolfi, and U. Morbiducci, "Combining 4D flow MRI and complex networks theory to characterize the hemodynamic heterogeneity in dilated and non-dilated human ascending aortas," *Annals of Biomedical Engineering*, vol. 49(9), p. 2441–2453, 2021. doi: [10.1007/s10439-021-02798-9](https://doi.org/10.1007/s10439-021-02798-9).
- [J23] S. Scarsoglio and L. Ridolfi, "Different impact of heart rate variability in the deep cerebral and central hemodynamics at rest: an in silico investigation," *Frontiers in Neuroscience*, vol. 15, p. 600574, 2021. doi: [10.3389/fnins.2021.600574](https://doi.org/10.3389/fnins.2021.600574).
- [J24] A. Saglietto, S. Scarsoglio, D. Canova, S. Roatta, N. Gianotto, A. Piccotti, S. Franzin, F. Gaita, G. M. De Ferrari, L. Ridolfi, and M. Anselmino, "Increased beat-to-beat variability of cerebral microcirculatory perfusion during atrial fibrillation: a near-infrared spectroscopy study," *EP Europace*, vol. 23(8), p. 1219–1226, 2021. doi: [10.1093/europace/euab070](https://doi.org/10.1093/europace/euab070).
- [J25] G. Iacobello, L. Ridolfi, and S. Scarsoglio, "Large-to-small scale frequency modulation analysis in wall-bounded turbulence via visibility networks," *Journal of Fluid Mechanics*, vol. 918, p. A13, 2021. doi: [10.1017/jfm.2021.279](https://doi.org/10.1017/jfm.2021.279).
- [J26] A. Saglietto, S. Scarsoglio, L. Ridolfi, D. Canova, and M. Anselmino, "Cerebral spatially resolved near-infrared spectroscopy (SRS-NIRS): paving the way for non-invasive assessment of cerebral hemodynamics during atrial fibrillation," *Minerva Cardioangiologica*, vol. 69(2), pp. 124–126, 2021. doi: [10.23736/S0026-4725.20.05242-1](https://doi.org/10.23736/S0026-4725.20.05242-1).
- [J27] C. Gallo, J. Olbers, L. Ridolfi, S. Scarsoglio, and N. Witt, "Testing a patient-specific in-silico model to noninvasively estimate central blood pressure," *Cardiovascular Engineering and Technology*, vol. 12(2), pp. 144–157, 2021. doi: [10.1007/s13239-020-00512-9](https://doi.org/10.1007/s13239-020-00512-9).
- [J28] G. Iacobello, L. Ridolfi, and S. Scarsoglio, "A review on turbulent and vortical flow analyses via complex networks," *Physica A*, vol. 563, p. 125476, 2021. doi: [10.1016/j.physa.2020.125476](https://doi.org/10.1016/j.physa.2020.125476).
- [J29] D. Perrone, J. G. M. Kuerten, L. Ridolfi, and S. Scarsoglio, "Wall-induced anisotropy effects on turbulent mixing in channel flow: A network-based analysis," *Physical Review E*, vol. 102, p. 043109, 2020. doi: [10.1103/PhysRevE.102.043109](https://doi.org/10.1103/PhysRevE.102.043109).
- [J30] C. Gallo, L. Ridolfi, and S. Scarsoglio, "Cardiovascular deconditioning during long-term spaceflight through multiscale modeling," *njp Microgravity*, vol. 6(1), p. 27, 2020. doi: [10.1038/s41526-020-00117-5](https://doi.org/10.1038/s41526-020-00117-5).
- [J31] K. Calò, G. De Nisco, D. Gallo, C. Chiastra, A. Hoogendoorn, D. A. Steinman, S. Scarsoglio, J. Wentzel, and U. Morbiducci, "Exploring wall shear stress spatiotemporal heterogeneity in coronary arteries combining correlation-based analysis and complex networks with computational hemodynamics," *Proceedings of the Institution of Mechanical Engineers, Part H: Journal of Engineering in Medicine*, vol. 234(11), pp. 1209–1222, 2020. doi: [10.1177/0954411920923253](https://doi.org/10.1177/0954411920923253).
- [J32] K. Calò, D. Gallo, D. A. Steinman, V. Mazzi, S. Scarsoglio, L. Ridolfi, and U. Morbiducci, "Spatiotemporal hemodynamic complexity in carotid arteries: an integrated computational hemodynamics & complex networks-based approach," *Transactions on Biomedical Engineering*, vol. 67(7), pp. 1841–1853, 2020. doi: [10.1109/TBME.2019.2949148](https://doi.org/10.1109/TBME.2019.2949148).

- [J33] G. Iacobello, M. Marro, L. Ridolfi, P. Salizzoni, and S. Scarsoglio, "Experimental investigation of vertical turbulent transport of a passive scalar in a boundary layer: Statistics and visibility graph analysis," *Physical Review Fluids*, vol. 4(10), p. 104501, 2019. doi: [10.1103/PhysRevFluids.4.104501](https://doi.org/10.1103/PhysRevFluids.4.104501).
- [J34] S. Scarsoglio, C. Gallo, A. Saglietto, L. Ridolfi, and M. Anselmino, "Impaired coronary blood flow at higher heart rates during atrial fibrillation: investigation via multiscale modelling," *Computer Methods and Programs in Biomedicine*, vol. 175, pp. 95–102, 2019. doi: [10.1016/j.cmpb.2019.04.009](https://doi.org/10.1016/j.cmpb.2019.04.009).
- [J35] A. Saglietto, S. Scarsoglio, L. Ridolfi, F. Gaita, and M. Anselmino, "Higher ventricular rate during atrial fibrillation relates to increased cerebral hypoperfusions and hypertensive events," *Scientific Reports*, vol. 9, p. 3779, 2019. doi: [10.1038/s41598-019-40445-5](https://doi.org/10.1038/s41598-019-40445-5).
- [J36] G. Iacobello, S. Scarsoglio, J. G. M. Kuerten, and L. Ridolfi, "Lagrangian network analysis of turbulent mixing," *Journal of Fluid Mechanics*, vol. 865, pp. 546–562, 2019. doi: [10.1017/jfm.2019.79](https://doi.org/10.1017/jfm.2019.79).
- [J37] S. Scarsoglio, C. Gallo, and L. Ridolfi, "Effects of atrial fibrillation on the arterial fluid dynamics: a modelling perspective," *Meccanica*, vol. 53(13), p. 3251–3267, 2018. doi: [10.1007/s11012-018-0867-6](https://doi.org/10.1007/s11012-018-0867-6).
- [J38] G. Iacobello, S. Scarsoglio, J. G. M. Kuerten, and L. Ridolfi, "Spatial characterization of turbulent channel flow via complex networks," *Physical Review E*, vol. 98, p. 013107, 2018. doi: [10.1103/PhysRevE.98.013107](https://doi.org/10.1103/PhysRevE.98.013107).
- [J39] G. Iacobello, S. Scarsoglio, and L. Ridolfi, "Visibility graph analysis of wall turbulence time-series," *Physics Letters A*, vol. 382(1), pp. 1–11, 2018. doi: [0.1016/j.physleta.2017.10.027](https://doi.org/10.1016/j.physleta.2017.10.027).
- [J40] S. Scarsoglio, F. Cazzato, and L. Ridolfi, "From time-series to complex networks: application to the cerebrovascular flow patterns in atrial fibrillation," *Chaos*, vol. 27(9), p. 093107, 2017. doi: [10.1063/1.5003791](https://doi.org/10.1063/1.5003791).
- [J41] S. Scarsoglio, A. Saglietto, M. Anselmino, F. Gaita, and L. Ridolfi, "Alteration of cerebrovascular haemodynamic patterns due to atrial fibrillation: an *in silico* investigation," *Journal of the Royal Society Interface*, vol. 14(129), p. 20170180, 2017. doi: [10.1098/rsif.2017.0180](https://doi.org/10.1098/rsif.2017.0180).
- [J42] M. Anselmino, S. Scarsoglio, A. Saglietto, F. Gaita, and L. Ridolfi, "A computational study on the relation between resting heart rate and atrial fibrillation hemodynamics under exercise," *PLoS ONE*, vol. 12(1), p. e0169967, 2017. doi: [10.1371/journal.pone.0169967](https://doi.org/10.1371/journal.pone.0169967).
- [J43] S. Scarsoglio, G. Iacobello, and L. Ridolfi, "Complex networks unveiling spatial patterns in turbulence," *International Journal of Bifurcation and Chaos*, vol. 26, no. 13, p. 1650223, 2016. doi: [10.1142/S0218127416502230](https://doi.org/10.1142/S0218127416502230).
- [J44] S. Scarsoglio, A. Saglietto, F. Gaita, L. Ridolfi, and M. Anselmino, "Computational fluid dynamics modelling of left valvular heart diseases during atrial fibrillation," *PeerJ*, vol. 4, p. e2240, 2016. doi: [10.7717/peerj.2240](https://doi.org/10.7717/peerj.2240).
- [J45] M. Anselmino, S. Scarsoglio, A. Saglietto, F. Gaita, and L. Ridolfi, "Transient cerebral hypoperfusion and hypertensive events during atrial fibrillation: a plausible mechanism for cognitive impairment," *Scientific Reports*, vol. 6, p. 28635, 2016. doi: [10.1038/srep28635](https://doi.org/10.1038/srep28635).
- [J46] S. Scarsoglio, C. Camporeale, A. Guala, and L. Ridolfi, "Fluid dynamics of heart valves during atrial fibrillation: a lumped parameter-based approach," *Computer Methods in Biomechanics and Biomedical Engineering*, vol. 19, no. 10, pp. 1060–1068, ISSN: 1025–5842, 2016. doi: [10.1080/10255842.2015.1094800](https://doi.org/10.1080/10255842.2015.1094800).
- [J47] M. Anselmino, S. Scarsoglio, C. Camporeale, A. Saglietto, F. Gaita, and L. Ridolfi, "Rate control management of atrial fibrillation: may a mathematical model suggest an ideal heart rate?," *PLoS ONE*, vol. 10(3), p. e0119868, 2015. doi: [10.1371/journal.pone.0119868](https://doi.org/10.1371/journal.pone.0119868).
- [J48] F. De Santi, S. Scarsoglio, W. O. Criminale, and D. Tordella, "Parametric perturbative study of the supercritical cross-flow boundary layer," *International Journal of Heat and Fluid Flow*, vol. 52, pp. 64–71, 2015. doi: [10.1016/j.ijheatfluidflow.2014.11.007](https://doi.org/10.1016/j.ijheatfluidflow.2014.11.007).

- [J49] S. Scarsoglio, A. Guala, C. Camporeale, and L. Ridolfi, "Impact of atrial fibrillation on the cardiovascular system through a lumped-parameter approach," *Medical and Biological Engineering and Computing*, vol. 52, no. 11, pp. 905–920, ISSN: 0140–0118, 2014. doi: [10.1007/s11517-014-1192-4](https://doi.org/10.1007/s11517-014-1192-4).
- [J50] S. Scarsoglio, F. Laio, and L. Ridolfi, "Climate dynamics: a network-based approach for the analysis of global precipitation," *PLoS ONE*, vol. 8(8), p. e71129, 2013. doi: [10.1371/journal.pone.0071129](https://doi.org/10.1371/journal.pone.0071129).
- [J51] S. Scarsoglio, P. D'Odorico, F. Laio, and L. Ridolfi, "Spatio-temporal stochastic resonance induces patterns in wetland vegetation dynamics," *Ecological Complexity*, vol. 10, pp. 93–101, ISSN: 1476–945X, 2012. doi: [10.1016/j.ecocom.2011.11.003](https://doi.org/10.1016/j.ecocom.2011.11.003).
- [J52] S. Scarsoglio, F. Laio, P. D'Odorico, and L. Ridolfi, "Spatial pattern formation induced by Gaussian white noise," *Mathematical Biosciences*, vol. 229, no. 2, pp. 174–184, ISSN: 0025–5564, 2011. doi: [10.1016/j.mbs.2010.11.008](https://doi.org/10.1016/j.mbs.2010.11.008).
- [J53] S. Scarsoglio, D. Tordella, and W. O. Criminale, "Role of long waves in the stability of the plane wake," *Physical Review E*, vol. 81, pp. 036326/1–9, ISSN:1539–3755, 2010. doi:[10.1103/PhysRevE.81.036326](https://doi.org/10.1103/PhysRevE.81.036326).
- [J54] S. Scarsoglio, D. Tordella, and W. O. Criminale, "An exploratory analysis of the transient and long term behaviour of small three-dimensional perturbations in the circular cylinder wake," *Studies in Applied Mathematics*, vol. 123, pp. 153–173, ISSN: 0022–2526, 2009. doi: [10.1111/J.1467-9590.2009.00449.X](https://doi.org/10.1111/J.1467-9590.2009.00449.X).
- [J55] D. Tordella and S. Scarsoglio, "The first R_{cr} as a possible measure of the entrainment length in a 2D steady wake," *Physics Letters A*, vol. 373, pp. 1159–1164, ISSN:0375–9601, 2009. doi: [10.1016/j.physleta.2009.01.063](https://doi.org/10.1016/j.physleta.2009.01.063).
- [J56] D. Tordella, S. Scarsoglio, and M. Belan, "Hydrodynamics linear stability theory. A comparison between Orr-Sommerfeld modal and initial value problem analyses," *Memorie della Accademia delle Scienze di Torino, Classe di Scienze Fisiche e Naturali*, vol. 31, no. 5, pp. 171–192, ISSN: 1120–1630, 2007.
- [J57] D. Tordella, S. Scarsoglio, and M. Belan, "A synthetic perturbative hypothesis for the multiscale analysis of the convective wake instability," *Physics of Fluids*, vol. 18, no. 5, pp. 054105/1–10, ISSN: 1070–6631, 2006. doi: [10.1063/1.2201114](https://doi.org/10.1063/1.2201114).

Book Chapters

- [B1] F. Jeltsch, L. Turnbull, S. Scarsoglio, C. L. Alados, F. Gallart, E. N. Mueller, N. Barbier, J. D. A. Millington, J. Wainwright, M. Wieczorek, and V. Grimm, "Chapter 3: Resilience, Self-Organization, Complexity and Pattern Formation," in *Patterns of Land Degradation in Drylands: Understanding Self-Organized Ecogeomorphic Systems* (E. N. Mueller, J. Wainwright, A. J. Parsons, L. Turnbull, ed.), pp. 55–84, ISBN: 978–94–007–5726–4, Springer, 2014. doi: [10.1007/978-94-007-5727-1_3](https://doi.org/10.1007/978-94-007-5727-1_3).
- [B2] L. Turnbull, T. Hochstrasser, M. Wieczorek, A. Baas, J. Wainwright, S. Scarsoglio, B. Tietjen, F. Jeltsch, and E. N. Mueller, "Chapter 7: Approaches to Modelling Ecogeomorphic Systems," in *Patterns of Land Degradation in Drylands: Understanding Self-Organized Ecogeomorphic Systems* (E. N. Mueller, J. Wainwright, A. J. Parsons, L. Turnbull, ed.), pp. 171–209, ISBN: 978–94–007–5726–4, Springer, 2014. doi:[10.1007/978-94-007-5727-1_7](https://doi.org/10.1007/978-94-007-5727-1_7).
- [B3] L. Ridolfi, P. D'Odorico, and F. Laio, "Chapter 5: Noise-induced pattern formation," in *Noise-Induced Phenomena in the Environmental Sciences* (Cambridge University Press, New York, ed.), pp. 167–239, ISBN: 978–0–521–19818–9, 2011. Contribution to the numerical simulations and the analysis of the results (see Preface). www.cambridge.org/9780521198189.

Proceedings and Conference Presentations (Speaker underlined)

- [PC1] Tripoli, F., L. Ridolfi, and S. Scarsoglio, "Acute cardiovascular response to gravity changes: a multiscale mathematical model for microgravity and hypergravity applications," in *Proceedings*

of the International Astronautical Congress, IAC, vol. 75, (75th International Astronautical Congress, Milan, Italy, October 14-18, 2024), p. 1, 2024.

- [PC2] Bhargav, V., N. Francescato, H. Mettelsiefen, A. Usmani, S. Scarsoglio, and V. Raghav, "Flow-geometric relationship during self-excited oscillations of a collapsible tube," in *Bull. Am. Phys. Soc.*, vol. 76, (76th Annual Meeting Division of Fluid Dynamics (APS-DFD), Washington DC, USA, November 19-21, 2023), p. 1, 2023.
- [PC3] Fois, M., A. Diaz-Artiles, S. Y. Zaman, L. Ridolfi, and S. Scarsoglio, "An in silico-in vivo framework for the acute ocular and cardiovascular response to 6° head-down tilt," in *XII Italian Chapter of the European Society of Biomechanics*, vol. 12, (XII Annual Meeting of the Italian Chapter of the European Society of Biomechanics, Torino, Italy, September 18-19, 2023), p. 1, 2023.
- [PC4] Tripoli, F., A. Saglietto, J. Zwanenburg, G. J. Biessels, G. M. De Ferrari, M. Anselmino, L. Ridolfi, and S. Scarsoglio, "Impact of vessel morphology on hemodynamics of lenticulostriate arteries during atrial fibrillation," in *XII Italian Chapter of the European Society of Biomechanics*, vol. 12, (XII Annual Meeting of the Italian Chapter of the European Society of Biomechanics, Torino, Italy, September 18-19, 2023), p. 1, 2023.
- [PC5] Calò, K., A. Guala, D. Gallo, J. Rodriguez-Palomares, S. Scarsoglio, L. Ridolfi, and U. Morbiducci, "4D flow MRI & network-based analysis of the hemodynamic correlation persistence length in the healthy aorta," in *Book of abstract ESB 2022*, vol. ESB2022, (26th Congress of the European Society of Biomechanics, Porto, Portugal, June 26-29, 2022), p. 2, 2022.
- [PC6] Calò, K., A. Guala, D. Gallo, J. Rodriguez-Palomares, S. Scarsoglio, L. Ridolfi, and U. Morbiducci, "4D flow MRI study of large-scale hemodynamics correlation persistence in the healthy human aorta using network science," in *Proceedings of the 2020 Summer Biomechanics, Bioengineering, and Biotransport Conference*, vol. SB3C2022, (Summer Biomechanics, Bioengineering and Biotransport Conference, Eastern Shore, Maryland (USA), June 20-23, 2022), p. 2, 2022.
- [PC7] Calò, K., D. Gallo, A. Guala, D. Steinman, S. Scarsoglio, L. Ridolfi, and U. Morbiducci, "Arterial flows as social networks: a novel approach to disentangle hemodynamic complexity," in *Book of abstract VPH 2022*, vol. VPH2022, (Virtual Physiological Human Conference 2022, Porto, Portugal, September 6-9, 2022), p. 1, 2022.
- [PC8] Saglietto, A., S. Scarsoglio, F. Tripoli, J. Zwanenburg, G. Biessels, L. Ridolfi, G. M. De Ferrari, and M. Anselmino, "Cerebral hemodynamics during atrial fibrillation: computational fluid dynamics (CFD) analysis of lenticulostriate arteries using 7T high-resolution magnetic resonance imaging," in *European Heart Journal, ESC Congress 2022, Oxford University Press*, vol. 43, Issue suppl. 2, (European Society of Cardiology Congress, Barcelona, Spain, 26-29 August, 2022), p. 501, 2022. doi: [10.1093/eurheartj/ehac544.501](https://doi.org/10.1093/eurheartj/ehac544.501).
- [PC9] Iacobello, G., S. Chowdhuri, L. Ridolfi, L. Rondoni, and S. Scarsoglio, "Multiscale analysis of time irreversibility in wall turbulence," in *European Fluid Mechanics Conference 14 Book of Abstracts*, vol. 14, (14th European Fluid Mechanics Conference, Athens, Greece, September 13-16, 2022), p. 866, 2022.
- [PC10] Fois, M., L. Ridolfi, and S. Scarsoglio, "Cardiovascular response to orthostatic stress: multiscale modeling with focus on the coronary circulation," in *CMBE 2022 Proceedings Vol. 1*, vol. 7, (7th International Conference on Computational and Mathematical Biomedical Engineering, Milan, Italy, June 27-29, 2022), pp. 336-339, 2022.
- [PC11] Calò, K., A. Guala, D. Gallo, J. Rodriguez-Palomares, S. Scarsoglio, D. A. Steinman, L. Ridolfi, and U. Morbiducci, "In vivo analysis of aortic hemodynamics by combining 4D flow MRI and complex networks theory," in *Proceedings of the 2021 Summer Biomechanics, Bioengineering, and Biotransport Conference*, vol. SB3C2021, (Summer Biomechanics, Bioengineering and Biotransport Conference, Virtual Conference, June 14-18, 2021), p. 2, 2021.
- [PC12] Calò, K., A. Guala, D. Gallo, J. Rodriguez-Palomares, S. Scarsoglio, L. Ridolfi, and U. Morbiducci, "In vivo aortic hemodynamics analysis combining complex networks theory and 4D flow

- MRI," in *Book of abstract ESB 2021*, vol. ESB2021, (26th Congress of the European Society of Biomechanics, Virtual meeting, July 11-14, 2021), p. 1, 2021.
- [PC13] Saglietto, A., S. Scarsoglio, M. Fois, L. Ridolfi, G. M. De Ferrari, and M. Anselmino, "Atrial fibrillation effects on coronary perfusion across the different myocardial layers: a computational analysis," in *European Heart Journal Supplements*, vol. 23(G), (82th SIC National Congress, Rome, Italy, December 9-12, 2021), pp. G16–G16, 2021. doi: [10.1093/eurheartj/suab127.039](https://doi.org/10.1093/eurheartj/suab127.039).
- [PC14] Perrone, D., J. G. M. Kuerten, L. Ridolfi, and S. Scarsoglio, "Network-based investigation of turbulent mixing in an inhomogeneous flow," in *ICTAM 2020+1 Proceedings*, vol. 25, (ICTAM 2020+1, Milan, Italy, August 22-27, 2021), pp. 1295–1296, 2021.
- [PC15] Calò, K., G. De Nisco, D. Gallo, C. Chiastra, V. Mazzi, A. Hoogendoorn, S. Scarsoglio, D. A. Steinman, J. Wentzel, and U. Morbiducci, "Unveiling wall shear stress spatiotemporal heterogeneity in coronary arteries," in *Proceedings of the 2020 Summer Biomechanics, Bioengineering, and Biotransport Conference*, vol. SB3C2020, (Summer Biomechanics, Bioengineering and Biotransport Conference, Virtual Conference, June 17-20, 2020), p. 2, 2020.
- [PC16] Saglietto, A., S. Scarsoglio, D. Canova, S. Roatta, N. Gianotto, A. Piccotti, S. Franzin, E. Toso, M. Rinaldi, F. Gaita, C. Giustetto, G. M. De Ferrari, L. Ridolfi, and M. Anselmino, "Insights into cerebral hemodynamics during atrial fibrillation: a noninvasive near-infrared spectroscopy approach," in *European Heart Journal Supplements*, vol. 22(N), (81th SIC National Congress, Rome, Italy, December 17-20, 2020), pp. N12–N12, 2020. doi: [10.1093/eurheartj/suaa190](https://doi.org/10.1093/eurheartj/suaa190).
- [PC17] Saglietto, A., D. Canova, N. Gianotto, I. Ferrandino, S. Scarsoglio, M. Ridolfi, L. and Anselmino, C. Giustetto, and G. De Ferrari, "Non-invasive monitoring of cerebral hemodynamics during atrial fibrillation," in *European Heart Journal Supplements*, vol. 21(J), (80th SIC National Congress, Rome, Italy, December 12-15, 2019), p. J25–J26, 2019. doi: [10.1093/eurheartj/suz245](https://doi.org/10.1093/eurheartj/suz245).
- [PC18] Scarsoglio, S., L. Ridolfi, A. Saglietto, and M. Anselmino, "To what extent does heart rate alter the cerebral hemodynamic patterns during atrial fibrillation?," in *IFMBE Proceedings*, vol. 76, (MEDICON 2019, Coimbra, Portugal, September 26-28, 2019), pp. 108–106, 2020. doi: [10.1007/978-3-030-31635-8_13](https://doi.org/10.1007/978-3-030-31635-8_13).
- [PC19] Gallo, C., L. Ridolfi, and S. Scarsoglio, "A closed-loop multiscale model of the cardiovascular system: Application to heart pacing and open-loop response," in *IFMBE Proceedings*, vol. 76, (MEDICON 2019, Coimbra, Portugal, September 26-28, 2019), pp. 577–585, 2020. doi: [10.1007/978-3-030-31635-8_69](https://doi.org/10.1007/978-3-030-31635-8_69).
- [PC20] Scarsoglio, S., C. Gallo, and L. Ridolfi, "Multiscale modeling of the cardiovascular deconditioning during spaceflight," in *Bull. Am. Phys. Soc.*, vol. 72, (72nd Annual Meeting Division of Fluid Dynamics (APS-DFD), Seattle WA, USA, November 23-26, 2019), p. 715, 2019.
- [PC21] Iacobello, G., S. Scarsoglio, J. G. M. Kuerten, and L. Ridolfi, "Complex network-based Lagrangian analysis of turbulent mixing in channel flows at different Reynolds numbers," in *Bull. Am. Phys. Soc.*, vol. 72, (72nd Annual Meeting Division of Fluid Dynamics (APS-DFD), Seattle WA, USA, November 23-26, 2019), p. 813, 2019.
- [PC22] Iacobello, G., L. Ridolfi, M. Marro, P. Salizzoni, and S. Scarsoglio, "Complex network analysis of wind tunnel experiments on the passive scalar dispersion in a turbulent boundary layer," in *Springer Proceedings in Physics*, vol. 226, (iTi Conference, Bertinoro, Italy, September 5-7, 2018), pp. 215–220, 2019. doi: [10.1007/978-3-030-22196-6_34](https://doi.org/10.1007/978-3-030-22196-6_34).
- [PC23] Gallo, C., L. Ridolfi, and S. Scarsoglio, "A comprehensive multiscale model of the cardiovascular system," in *XXIV AIMETA Conference Book*, vol. 24, (XXIV AIMETA Conference, Rome, Italy, September 15-19, 2019), p. 189, 2019.
- [PC24] Calò, K., D. Gallo, V. Mazzi, S. Scarsoglio, M. Owais Khan, D. A. Steinman, L. Ridolfi, and U. Morbiducci, "Computational hemodynamics & complex networks integrated platform to study intravascular flow in the carotid bifurcation," in *Proceedings of the 2019 Summer Biomechanics, Bioengineering, and Biotransport Conference*, vol. SB3C2019, (Summer Biomechanics, Bioengineering and Biotransport Conference, Seven Springs, PA, USA, June 25-28, 2019), p. 2, 2019.

- [PC25] Scarsoglio, S., G. Iacobello, L. Ridolfi, M. Marro, and P. Salizzoni, "Network-based characterization of passive-scalar plume dynamics in a turbulent boundary layer," in *17th European Turbulence Conference Book of Abstracts*, vol. 17, (17th European Turbulence Conference, Turin, Italy, September 3-6, 2019), p. 448, 2019.
- [PC26] Iacobello, G., S. Scarsoglio, J. G. M. Kuerten, and L. Ridolfi, "Lagrangian mixing in wall-bounded turbulence: a network perspective," in *17th European Turbulence Conference Book of Abstracts*, vol. 17, (17th European Turbulence Conference, Turin, Italy, September 3-6, 2019), p. 444, 2019.
- [PC27] Iacobello, G., S. Scarsoglio, J. G. M. Kuerten, and L. Ridolfi, "Complex network characterization of lagrangian mixing in a turbulent channel flow," in *9th European Postgraduate Fluid Dynamics Conference Book of Abstracts*, vol. 9, (9th European Postgraduate Fluid Dynamics Conference, Ilmenau, Germany, July 16-19, 2019), p. 2, 2019.
- [PC28] Iacobello, G., S. Scarsoglio, J. G. M. Kuerten, and L. Ridolfi, "Temporal network-based analysis of turbulent mixing," in *7th International Conference on Complex Networks and Their Applications Book of Abstracts*, vol. 7, (7th International Conference on Complex Networks and Their Applications, Cambridge, UK, December 11-13, 2018), pp. 383–386, ISBN: 978–2–9557050–2–5, 2018.
- [PC29] Gallo, C., L. Ridolfi, and S. Scarsoglio, "Effects of atrial fibrillation on the coronary flow at different heart rates: a computational approach," in *Computing in Cardiology Conference 2018*, vol. 45, (Computing in Cardiology Conference, Maastricht, The Netherlands, September 23-26, 2018), pp. 1–4, ISSN: 2325–887X, 2018. doi: [10.22489/CinC.2018.130](https://doi.org/10.22489/CinC.2018.130).
- [PC30] Calò, K., M. Owais Khan, D. Gallo, S. Scarsoglio, D. A. Steinman, L. Ridolfi, and U. Morbiducci, "Exploring flow disturbances at the carotid bifurcation through an integrated computational hemodynamics & complex networks-based approach," in *Proceedings of the 8th World Congress of Biomechanics*, vol. 8, (8th World Congress of Biomechanics, Dublin, Ireland, July 8-12, 2018), p. 1, 2018.
- [PC31] Iacobello, G., L. Ridolfi, M. Marro, P. Salizzoni, and S. Scarsoglio, "Complex network analysis of wind tunnel experiments on the passive scalar dispersion in a turbulent boundary layer," in *Book of Abstracts - iTi Conference on Turbulence VIII*, vol. 8, (iT*i* Conference, Bertinoro, Italy, September 5-7, 2018), pp. 65–66, 2018.
- [PC32] Gallo, C., S. Scarsoglio, and L. Ridolfi, "Multiscale model of the cardiovascular system: application to pathological and altered acceleration conditions," in *European Fluid Mechanics Conference 12 Book of Abstracts*, vol. 12, (12th European Fluid Mechanics Conference, Wien, Austria, September 9-13, 2018), pp. 143–143, ISBN: 978–3–200–05859–0, 2018.
- [PC33] Iacobello, G., S. Scarsoglio, J. G. M. Kuerten, and L. Ridolfi, "Spatial investigation of wall turbulence via complex networks," in *European Fluid Mechanics Conference 12 Book of Abstracts*, vol. 12, (12th European Fluid Mechanics Conference, Wien, Austria, September 9-13, 2018), pp. 731–731, ISBN: 978–3–200–05859–0, 2018.
- [PC34] Scarsoglio, S., A. Saglietto, M. Anselmino, and L. Ridolfi, "Cerebral blood flow: possible hemodynamic links between atrial fibrillation and cognitive decline," in *European Fluid Mechanics Conference 12 Book of Abstracts*, vol. 12, (12th European Fluid Mechanics Conference, Wien, Austria, September 9-13, 2018), pp. 145–145, ISBN: 978–3–200–05859–0, 2018.
- [PC35] Gallo, C., L. Ridolfi, and S. Scarsoglio, "A multi-scale mathematical model of the cardiovascular system for investigation of cardiac arrhythmias," in *Book of abstracts of SIMAI 2018*, vol. 14, (SIMAI Conference, Rome, Italy, July 2-6, 2018), pp. 150–151, ISBN: 978–88–6493–045–9, 2018.
- [PC36] Iacobello, G., S. Scarsoglio, J. G. M. Kuerten, and L. Ridolfi, "Spatial network investigation of wall turbulence," in *6th International Conference on Complex Networks and Their Applications Book of Abstracts*, vol. 6, (6th International Conference on Complex Networks and Their Applications, Lyon, France, November 29 - December 1, 2017), pp. 300–302, ISBN: 978–2–9557050–2–5, 2017.

- [PC37] Calò, K., M. Owais Khan, D. Gallo, S. Scarsoglio, D. A. Steinman, L. Ridolfi, and U. Morbiducci, "Exploring intracranial aneurysm hemodynamics with a complex networks approach," in *Proceedings of the VII Meeting of the Italian Chapter of the European Society of Biomechanics*, vol. 7, (VII Annual Meeting Italian Chapter of the European Society of Biomechanics, Rome, Italy, September 28-29, 2017), pp. 17–18, ISBN: 978–88–6296–000–7, 2017.
- [PC38] Iacobello, G., S. Scarsoglio, and L. Ridolfi, "Characterization of turbulent channel flows: from time-series to complex networks," in *16th European Turbulence Conference Book of Abstracts*, vol. 16, (16th European Turbulence Conference, Stockholm, Sweden, August 21-24, 2017), p. 28776, 2017.
- [PC39] Gallo, C., S. Scarsoglio, and L. Ridolfi, "Pressure alterations along the arterial tree during atrial fibrillation," in *23rd Congress of the European Society of Biomechanics Book of Abstracts*, vol. 23, (23rd Congress of the European Society of Biomechanics, Seville, Spain, July 2-5, 2017), p. 1137, 2017.
- [PC40] Anselmino, M., A. Saglietto, S. Scarsoglio, L. Ridolfi, and F. Gaita, "Cerebral hypoperfusions and hypertensive events during atrial fibrillation: a mechanism for cognitive impairment?," in *European Heart Journal, ESC Congress 2016, Oxford University Press*, vol. 37, Issue suppl. 1, (European Society of Cardiology Congress, Rome, Italy, 27-31 August, 2016), pp. 608–609, 2016. doi: [10.1093/eurheartj/ehw433](https://doi.org/10.1093/eurheartj/ehw433).
- [PC41] Iacobello, G., S. Scarsoglio, and L. Ridolfi, "New insights into spatial characterization of turbulent flows: a complex network-based analysis," in *8th European Postgraduate Fluid Dynamics Conference Book of Abstracts*, vol. 8, (8th European Postgraduate Fluid Dynamics Conference, Warsaw, Poland, July 6-9, 2016), p. 38, 2016.
- [PC42] Anselmino, M., A. Saglietto, S. Scarsoglio, L. Ridolfi, and F. Gaita, "Hemodynamic impact of valve diseases during persistent atrial fibrillation: a computational approach," in *13 Congresso Nazionale AIAC*, vol. 13, (13 Congresso Nazionale AIAC, Bologna, Italy, 10-12 March, 2016), p. 1, 2016.
- [PC43] Saglietto, A., M. Anselmino, S. Scarsoglio, C. Camporeale, F. Gaita, and L. Ridolfi, "New insights into rate control therapy of atrial fibrillation: a lumped-model approach," in *76 Congresso Annuale Società Italiana Cardiologia*, vol. 76, (76 Congresso Annuale Società Italiana Cardiologia, Rome, Italy, 11-14 December, 2015), p. 1, 2015.
- [PC44] Saglietto, A., M. Anselmino, S. Scarsoglio, F. Gaita, and L. Ridolfi, "Higher resting heart rate relates to greater rise in pulmonary vein pressure under exercise during permanent atrial fibrillation: a computational study," in *76 Congresso Annuale Società Italiana Cardiologia*, vol. 76, (76 Congresso Annuale Società Italiana Cardiologia, Rome, Italy, 11-14 December, 2015), p. 1, 2015.
- [PC45] Scarsoglio, S., A. Guala, C. Camporeale, and L. Ridolfi, "Characterizing the cardiovascular functions during atrial fibrillation through lumped-parameter modeling," in *Alma Mater Studiorum Acta, Proceedings of ICMMB 2014, Editors: R. Zannoli, I. Corazza, R. Stagni*, vol. 19, (19 International Conference on Mechanics in Medicine and Biology, Bologna, Italy, 3-5 September, 2014), pp. 347–351, ISBN: 978–88–901675–1–5, 2014. doi: [10.6092/unibo/amsacta/4085](https://doi.org/10.6092/unibo/amsacta/4085).
- [PC46] De Santi, F., S. Scarsoglio, W. O. Criminale, and D. Tordella, "Role of the obliquity angle on the perturbed cross-flow boundary layer," in *XXI AIMETA Conference Book*, vol. 21, (XXI AIMETA Conference, 17-20 September 2013, Torino, Italy), p. 33, 2013.
- [PC47] De Santi, F., S. Scarsoglio, W. O. Criminale, and D. Tordella, "Perturbed cross-flow boundary layer: nontrivial effects of the obliquity angle at small and high Reynolds numbers," in *European Turbulence Conference 14 Book of Abstracts*, vol. 14, (14th Euromech European Turbulence Conference, Lyon, France, September 1-4, 2013), p. 2, 2013.
- [PC48] Scarsoglio, S., F. De Santi, and D. Tordella, "Travelling perturbations in sheared flows: sudden transition in frequency and phase speed asymptotics," in *European Fluid Mechanics Conference 9 Book of Abstracts*, vol. 9, (European Fluid Mechanics Conference 9, Rome, Italy, September 9-13, 2012), p. 1, 2012.

- [PC49] De Santi, F., S. Scarsoglio, and D. Tordella, "On the frequency of hydrodynamic perturbations. Early and intermediate transients," in *6th European Postgraduate Fluid Dynamics Conference Book of Abstracts*, vol. 6, (6th European Postgraduate Fluid Dynamics Conference, London, UK, July 10-12, 2012), p. 60, 2012.
- [PC50] S. Scarsoglio, De Santi, F., and D. Tordella, "Collective behaviour of linear perturbation waves observed through the energy density spectrum," in *Journal of Physics: Conference Series*, vol. 318, (13th Euromech European Turbulence Conference, Warsaw, Poland, September 12-15, 2011), pp. 032004/1–6, ISSN: 1742–6588, 2011. doi: [10.1088/1742-6596/318/3/032004](https://doi.org/10.1088/1742-6596/318/3/032004).
- [PC51] Scarsoglio, S., F. De Santi, and D. Tordella, "Does the Kolmogorov scaling bridge hydrodynamic linear stability and turbulence?," in *Bull. Am. Phys. Soc.*, vol. 56, (64th Annual Meeting Division of Fluid Dynamics (APS-DFD), Baltimore MD, USA, November 20-22, 2011), p. 40, 2011.
- [PC52] Scarsoglio, S., F. De Santi, M. Mastinu, G. Barletta, K. Weaver, and D. Tordella, "Energy spectrum power-law decay of linearized perturbed shear flows," in *5th European Postgraduate Fluid Dynamics Conference Book of Abstracts*, vol. 5, (5th European Postgraduate Fluid Dynamics Conference, Göttingen, Germany, August 9-12, 2011), p. 9, 2011.
- [PC53] Scarsoglio, S., F. De Santi, and D. Tordella, "Power-law decay of the energy spectrum in linearized perturbed systems," in *Fourth International Symposium "Bifurcations and Instabilities in Fluid Dynamics"*, vol. 4, (4th International Symposium "Bifurcations and Instabilities in Fluid Dynamics", Barcelona, Spain, July 18-21, 2011), p. 1, 2011.
- [PC54] Allamano, P., E. Bartolini, P. Claps, F. Laio, and S. Scarsoglio, "Spatial interpolation of extreme-precipitation with intermittent records," in *Geophysical Research Abstracts EGU2011*, vol. 13, (European Geosciences Union, General Assembly 2011, Vienna, Austria, April 3-8, 2011), p. 12207, 2011.
- [PC55] S. Scarsoglio and Tordella, D., "Pre-unstable set of multiple transient 3D perturbation waves and the associated turbulent state in a shear flow," in *Proceedings of the 17th Australasian Fluid Mechanics Conference*, vol. 17, (17th Australasian Fluid Mechanics Conference, Auckland, New Zealand, December 5-9, 2010), pp. 360–363, ISBN: 978–0–86869–129–9, 2010.
- [PC56] Scarsoglio, S. and D. Tordella, "Energy spectrum in shear flows. a general pre-unstable large set of multiple transient 3D waves and the turbulent state," in *European Fluid Mechanics Conference 8 Book of Abstracts*, vol. 8, (European Fluid Mechanics Conference 8, Bad Reichenhall, Germany, September 13-16, 2010), pp. S3–31, 2010.
- [PC57] Scarsoglio, S., D. Tordella, and W. O. Criminale, "Linear generation of multiple time scales by 3D unstable perturbations," in *Springer Proceedings in Physics Advances in Turbulence XII*, Bruno Eckhardt Editor, Springer (DEU), vol. 132, (12th Euromech European Turbulence Conference, Marburg, Germany, September 7-10, 2009), pp. 155–158, ISBN: 978–3–642–030, 2009. doi: [10.1007/978-3-642-03085-7](https://doi.org/10.1007/978-3-642-03085-7).
- [PC58] S. Scarsoglio, Tordella, D., and W. O. Criminale, "Multiscale analysis of long 3D perturbation waves in shear flows," in *European Fluid Mechanics Conference 7 Book of Abstracts*, vol. 7, (European Fluid Mechanics Conference 7, Manchester, England, September 14-18, 2008), p. 338, 2008.
- [PC59] Scarsoglio, S., D. Tordella, and W. O. Criminale, "A multiscale approach to study the stability of long waves in near-parallel flows," in *Bull. Am. Phys. Soc.*, vol. 52, (60th Annual Meeting Division of Fluid Dynamics (APS-DFD), Salt Lake City UT, USA, November 18-20, 2007), p. 64, 2007.
- [PC60] Scarsoglio, S., D. Tordella, and W. O. Criminale, "Temporal dynamics of small perturbations for a 2D growing wake," in *Advances in Turbulence XI. ETC11, CIMNE (ESP)*, vol. 117, (11th Euromech European Turbulence Conference, Porto, Portugal, June 25-29, 2007), pp. 221–223, ISBN: 978–3–540–72603–6, 2007. doi: [10.1007/978-3-540-72604-3_70](https://doi.org/10.1007/978-3-540-72604-3_70).

- [PC61] Scarsoglio, S., D. Tordella, and W. O. Criminale, "Initial-value problem for the 2D growing wake," in *Bull. Am. Phys. Soc.*, vol. 51, (59th Annual Meeting Division of Fluid Dynamics (APS-DFD), Tampa FL, USA, November 19-21, 2006), p. 88, 2006.
- [PC62] Tordella, D., S. Scarsoglio, and M. Belan, "A synthetic perturbative hypothesis for multiscale analysis of bluff-body wake instability," in *European Fluid Mechanics Conference 6 Book of Abstracts*, vol. 6, (Euromech Fluid Mechanics Conference 6, Stockholm, Sweden, June 26-30, 2006), p. 317, 2006.
- [PC63] Scarsoglio, S., D. Tordella, and M. Belan, "Analysis of the convective instability of the 2D wake," in *22nd IFIP TC 7 Conference on System Modeling and Optimization*, vol. 1, (22nd IFIP TC 7 Conference on System Modeling and Optimization, Torino, Italy, July 18-22, 2005), p. 77 (5 pages), 2005.

PhD Thesis

- [T1] S. Scarsoglio, *Hydrodynamic linear stability of the two-dimensional bluff-body wake through modal analysis and initial-value problem formulation*. PhD thesis, Politecnico di Torino, Torino, Italy, 2008.

Invited Talks

- May 23, 2023 *Human spaceflight alterations: a journey from experiments to computational modeling*, Missione Spazio: come orbitano corpo e mente, Politecnico di Torino, Torino, Italy (hosted by AESA Torino).
- Jun 24-25, 2020 *Complex Networks Approach to Wall-Bounded Turbulence*, Workshop on Network Science for Fluid Dynamics, online at UCLA, Los Angeles, California USA (hosted by Prof. K. Taira and Dr. M. Munson).
- Feb 18, 2015 *Lumped-parameter modeling of the cardiovascular system*, "Città della Salute e della Scienza" Hospital, University of Turin, Division of Cardiology, Torino, Italy (hosted by Dr. M. Anselmino and Prof. F. Gaita).
- Jun 22, 2011 *Spatial pattern formation induced by stochastic processes*, Systems Biomedicine, Department of Experimental Oncology, Campus IFOM-IEO, Milan, Italy (hosted by Dr. A. D'Onofrio).
- Apr 6, 2011 *Hydrodynamic stability and energy spectrum power-law decay of linearized perturbed systems: the 2D bluff-body wake*, Computational Science and Engineering Laboratory, ETH Zurich, Zurich, Switzerland (hosted by Prof. P. Koumoutsakos).
- Jun 7-10, 2010 *Noise-induced spatial pattern formation*, European Science Foundation Workshop "Self-organised ecogeomorphic systems: confronting models with data for land-degradation in drylands". Poster presentation and seminar session. Potsdam, Germany.
- May 6, 2010 *Hydrodynamic linear stability of the two-dimensional bluff-body wake through modal analysis and initial-value problem formulation and Noise-induced spatial pattern formation in dynamical systems*, DICAT, Università degli Studi di Genova, Genova, Italy (hosted by Prof. A. Bottaro).
- Sep 4, 2007 *Instability and turbulence in flows of automotive and aeronautical interest*, Research Projects between Unione Industriale Torino and Politecnico di Torino. Unione Industriale Torino, Torino, Italy.
- Apr 6, 2006 *Absolute and convective instability of the two-dimensional wake*, Applied and Computational Mathematical Sciences Seminars, University of Washington, Seattle, Washington USA (hosted by Dr. C. Lind and Prof. W. O. Criminale).

Qualifications

- 2023 National Scientific Qualification (ASN – "Abilitazione Scientifica Nazionale") as full professor in Aeronautical, Aerospace and Marine Engineering, 09/A1
Validity: 6th February 2023 through 6th February 2033

Institutional Academic Roles

- 2017-present Member of the PolitoBIOMed Lab - Biomedical Engineering Lab, Politecnico di Torino
- 2017-2022 Student Tutoring Service for the BSc Degree in Aerospace Engineering, Politecnico di Torino
- 2024-present Student Tutoring Service for the MSc Degree in Aerospace Engineering, Politecnico di Torino
- 2017-2022 Reference Teacher within the AVA-ANVUR Procedure (Italian National Agency for the Evaluation of the University and Research Systems) for the BSc Degree in Aerospace Engineering, Politecnico di Torino
- 2022-present Reference Teacher within the AVA-ANVUR Procedure (Italian National Agency for the Evaluation of the University and Research Systems) for the MSc Degree in Aerospace Engineering, Politecnico di Torino
- 2017-present Member of the Scientific Boards for Assistant Professor positions (Researcher A-Type) in Fluid Dynamics (University of Bologna, University of Naples, Politecnico di Torino)
- 2017-present Member of the Scientific Board for PhD Final Examination (Politecnico di Torino and Università degli Studi di Udine)
- 2020 Member of the Scientific Board for PhD Admission Examination (Politecnico di Torino, 36 Cycle, Aerospace Engineering)
- 2015-2016 Aggregate member (Aerospace Engineering) of the Committee for the Professional Engineering Qualifying Examination (Esami di stato per l'abilitazione all'esercizio della professione di Ingegnere), I and II sessions, Politecnico di Torino
- 2015-present Erasmus+ and Extra-UE Mobility Coordinator for the MSc Degree in Aerospace Engineering, Politecnico di Torino
- 2016-present "Young Talent Project" and "Enterprising Project" Mobility Coordinator for the BSc Degree in Aerospace Engineering, Politecnico di Torino
- 2015-present Member of the Scientific Boards for Post-graduate and Post-doc research fellowships, Politecnico di Torino
- 2015-present Effective Member of the Scientific Board for the PhD School in Aerospace Engineering, Politecnico di Torino
- 2014 Aggregate Member of the Scientific Board for the PhD School in Aerospace Engineering, Politecnico di Torino
- 2013-2014 Aggregate Member of the Scientific Board for the PhD School in Environmental Engineering, Politecnico di Torino

Previous Positions

- Oct, 2014 - **Assistant Professor with tenure in Fluid Dynamics**
Jan, 2018 Department of Mechanical and Aerospace Engineering
Politecnico di Torino, Torino, Italy
- Oct, 2011 - **Assistant Professor in Fluid Dynamics**
Oct, 2014 Department of Mechanical and Aerospace Engineering
Politecnico di Torino, Torino, Italy
- Jul, 2011 - **Term-Contract Worker**
Sep, 2011 CIFS, Interuniversity Consortium for Space Physics, Torino, Italy
Scientific Advisor: Prof. D. Tordella.
- Jul, 2009 - **Post-Doctoral Research Fellow**
May, 2011 Department of Water Engineering, Politecnico di Torino, Torino, Italy
Project: Spatial pattern formation induced by stochastic processes.
Scientific Advisors: Prof. F. Laio and Prof. L. Ridolfi.
- May, 2008 - **Fluid Dynamics and Mechanical Analyst**
May, 2009 Fiat Research Center, Powertrain Technologies and Research, Torino, Italy
Finite element modelling, thermal and thermo-structural analysis. Engine components analysis for automotive Diesel and gasoline applications
- Feb-May, 2008 **Post-Doctoral Research Fellow**
Department of Aeronautics and Space Engineering, Politecnico di Torino
Project: Regione Piemonte Research Grant E59 "Aerodynamic simulation of an ultra-light airfoil".
Scientific Advisor: Prof. D. Tordella.

Visiting Positions

- Oct, 2011 - **Visiting assistant professor**
Dec, 2011 Massachusetts Institute of Technology, Cambridge MA, USA
Mathematics Department, Prof. G. Staffilani
- Jan, 2006 - **Visiting graduate student**
Jan, 2007 University of Washington, Seattle WA, USA
Department of Applied Mathematics, Prof. W. O. Criminale

Organization of scientific meetings

- Oct, 2009 **Member of the Organizing Committee**
Euromech Colloquium 512, *Small Scale Turbulence and Related Gradient Statistics* (www.euromech512.polito.it/), Accademia delle Scienze di Torino, Torino, Italy.

Referee Activity

Referee for the following ISI journals:

- Scientific Reports, Journal of Fluid Mechanics, Acta Astronautica, Annals of Biomedical Engineering, PLoS ONE, Computer Methods and Programs in Biomedicine, Computers in Biology and Medicine, Journal of Computational Physics, Chaos, Physics Letters A, Fluid Dynamics Research, Journal of Fluids Engineering, International Journal of Bifurcation and Chaos, Frontiers in Human Neuroscience, Hydrology and Earth System Sciences, Ecological Complexity, Stochastic Environmental Research and Risk Assessment, Discrete Dynamics in Nature and Society

Memberships of Scientific Societies

- 2006-present Member of the European Mechanics Society
 2006-present Member of the American Physical Society

Teaching Experience

Teacher

- 2023-present Teacher, *Biofluid dynamics and space medicine* (Master Course, Aerospace Engineering, Politecnico di Torino, Torino, Italy)
 2022-present Teacher, *Thermo-fluid dynamics* (Undergraduate Course, Aerospace Engineering, Politecnico di Torino, Torino, Italy)
 2018-2023 Teacher (together with Prof. D. D'Ambrosio), *Fluid dynamics in space flight* (Master Course, Aerospace Engineering, Politecnico di Torino, Torino, Italy)
 2016-2022 Teacher, *Applied thermodynamics and heat transfer* (Undergraduate Course, Aerospace Engineering, Politecnico di Torino, Torino, Italy)
 2015-2016 Teacher (together with Prof. E. Carrera), *Aeroelasticity* (Master Course, Aerospace Engineering, Politecnico di Torino, Torino, Italy)
 2007-2008 Teacher (together with Prof. D. Tordella and Dr. G. Khujadze), *Hydrodynamic Stability* (PhD course, Politecnico di Torino, Torino, Italy)

Teaching Assistant

- 2012-2023 *Aerodynamics* (teacher: Prof. R. Arina, Undergraduate Course, Aerospace Engineering, Politecnico di Torino, Torino, Italy)
 2014-2015 *Gas dynamics* (teacher: Prof. G. Iuso, Master Course, Aerospace Engineering, Politecnico di Torino, Torino, Italy)
 2012-2015 *Applied aerodynamics* (teacher: Prof. G. M. Di Cicca, Undergraduate Course, Aerospace Engineering, Politecnico di Torino, Torino, Italy)
 2011-2014 *Fluid dynamics* (teacher: Prof. D. Tordella, Master Course, Mathematical Engineering, Politecnico di Torino, Torino, Italy)
 2007-2008

Thesis and Research Project Advisership

PhD Students

- Mar, 2024 - present Luca Congiu
 Research Topic: "Cerebral fluid dynamics: an integrated clinical-computational approach to investigate the link between atrial fibrillation and dementia".
 PhD School in Aerospace Engineering, Politecnico di Torino, XXXIX Cycle (Advisor: S. Scarsoglio, Co-Advisor: L. Ridolfi)
- Nov, 2023 - present Francesco Tripoli
 Research Topic: "Optimizing countermeasures against cardiovascular deconditioning and cerebral hemodynamics changes in long-term human spaceflights".
 PhD School in Aerospace Engineering, Politecnico di Torino, XXXIX Cycle (Advisor: S. Scarsoglio, Co-Advisor: L. Ridolfi)
- Nov, 2020 - Apr, 2024 Matteo Fois
 Research Topic: "Impact of posture and gravity on the cardiovascular system: a validated multiscale modeling approach for ground-based and spaceflight applications".
 PhD School in Aerospace Engineering, Politecnico di Torino, XXXVI Cycle (Advisor: S. Scarsoglio, Co-Advisor: L. Ridolfi)
- May, 2020 - May 2024 Davide Perrone
 Research Topic: "Lagrangian dynamics in wall-bounded transitional and turbulent flows: particle tracking and network-based analyses".
 PhD School in Aerospace Engineering, Politecnico di Torino, XXXVI Cycle (Advisor: S. Scarsoglio, Co-Advisor: L. Ridolfi)
- Nov, 2017 - Jan, 2021 Caterina Gallo
 Research Topic: "A multiscale modelling of the cardiovascular fluid dynamics for clinical and space applications".
 PhD School in Aerospace Engineering, Politecnico di Torino, XXXIII Cycle (Advisor: S. Scarsoglio, Co-Advisor: L. Ridolfi)
- Nov, 2016 - Apr, 2020 Giovanni Iacobello
 Research Topic: "Spatio-temporal analysis of wall-bounded turbulence: A multidisciplinary perspective via complex networks".
 PhD School in Aerospace Engineering, Politecnico di Torino, XXXII Cycle (Advisor: S. Scarsoglio)

Master Degree

- ongoing B. Sicca, *Multiscale modeling of countermeasures for cardiovascular alterations induced by human spaceflight*, MSc in Aerospace Engineering, Politecnico di Torino (Advisor with L. Ridolfi, F. Tripoli)
- ongoing C. Martinelli, *Experimental study of countermeasures for cardiovascular alterations induced by human spaceflight*, MSc in Aerospace Engineering, Politecnico di Torino (Advisor with L. Ridolfi, F. Tripoli, S. Roatta)
- ongoing M. Galante, *Time irreversibility in turbulence*, MSc in Physics of Complex Systems, Politecnico di Torino (Co-advisor with L. Ridolfi and G. Iacobello)
- Jul, 2024 M. Mastrogiacomo, *Quantifying paravalvular leakage (PVL) after transcatheter aortic valve replacement (TAVR) using particle image velocimetry (PIV)*, MSc in Aerospace Engineering, Politecnico di Torino (Thesis abroad: Auburn University/Polito, Advisors: S. Scarsoglio, V. Raghav)

- Apr, 2024 A. Molinas, *Analysis of the human body cooling system inside spacesuits during ExtraVehicular Activities*, MSc in Aerospace Engineering, Politecnico di Torino (Advisor with F. Gentile)
- Jul, 2023 G. Santanatoglia, *A fluid dynamics study using image processing of scallops on dissolving hard candy*, MSc in Aerospace Engineering, Politecnico di Torino (Thesis abroad: University of Twente/Polito, Advisors: S. Scarsoglio, S. Huisman)
- Apr, 2023 N. Francescato, *Self-excited oscillations in collapsible tubes*, MSc in Aerospace Engineering, Politecnico di Torino (Thesis abroad: Auburn University/Polito, Advisors: S. Scarsoglio, V. Raghav)
- Jul, 2022 F. Tripoli, *Computational hemodynamics of lenticulostriate arteries during atrial fibrillation*, MSc in Biomedical Engineering, Politecnico di Torino (Co-advisor with L. Ridolfi)
- Mar, 2022 C. Viazzo, *Analysis of historical temperature time-series*, MSc in Mathematical Engineering, Politecnico di Torino (Co-advisor with L. Ridolfi and P. Salizzoni)
- Mar, 2022 M. Perrone, *Innovative analysis of turbulent transport*, MSc in Mathematical Engineering, Politecnico di Torino (Co-advisor with L. Ridolfi and G. Iacobello)
- Dec, 2021 F. Montanari, *Methods for planning the logistical operations of a vehicle fleet to support a production line*, MSc in Aerospace Engineering, Politecnico di Torino (Thesis abroad: Institut Supérieur de Mécanique de Paris/Polito, Advisors: R. Arina, S. Scarsoglio, P. Leclaire, A. Bit-Monnot)
- Dec, 2021 M.C. Arminio, *CFD analysis of lenticulostriate arteries in presence of cardiac arrhythmias*, MSc in Biomedical Engineering, Politecnico di Torino (Co-advisor with L. Ridolfi and G. Dubini)
- Dec, 2019 D. Perrone, *Lagrangian analysis of the turbulent mixing*, MSc in Aerospace Engineering, Politecnico di Torino (Advisor with L. Ridolfi)
- Jul, 2019 L. Capello, *Recurrence plot analysis of turbulent boundary layers with passive scalar dispersion*, MSc in Mechanical Engineering, Politecnico di Torino (Co-advisor with L. Ridolfi and G. Iacobello)
- Mar, 2019 M. Grumo, *Complex network analysis of wind tunnel experiments on the passive scalar dispersion in a turbulent boundary layer*, MSc in Aerospace Engineering, Politecnico di Torino (Advisor with L. Ridolfi and G. Iacobello)
- Dec, 2018 A. Pasino, *Innovative analyses of meteorological data*, MSc in Mathematical Engineering, Politecnico di Torino (Co-advisor with L. Ridolfi and G. Iacobello)
- Dec, 2018 F. Dallari, *Complex-network analysis of turbulent channel flow: effects of the Reynolds number*, MSc in Aerospace Engineering, Politecnico di Torino (Advisor with L. Ridolfi and G. Iacobello)
- Oct, 2018 I. Ferrandino, *Heartbeat sequence extraction from cerebral NIRS measures*, MSc in Biomedical Engineering, Politecnico di Torino (Co-advisor with L. Ridolfi)
- Oct, 2018 M. Assale, *Network analysis of MRI-based aortic blood flow*, MSc in Biomedical Engineering, Politecnico di Torino (Co-advisor with L. Ridolfi)
- Oct, 2017 M. Bivona, *Validation of a 3D thermo-hydraulic code for the steam generation*, MSc in Aerospace Engineering, Politecnico di Torino (Thesis abroad: École Centrale de Lyon/Polito, Advisors: S. Scarsoglio, and J.M. Vignon)

- Oct, 2017 M. Nicoletti, *Implementation of a wake detector and wind farm control algorithm for wind tunnel tests*, MSc in Aerospace Engineering, Politecnico di Torino (Thesis abroad: Technical University of Munich/Polito, Advisors: S. Scarsoglio, R. Arina, and J. Schreiber)
- Jul, 2017 A. Cina, *Predictive models for the evolution of aortic aneurysms. Formulation and validation on the Database of the Hypertension Center "Città della Salute e della Scienza di Torino" Hospital*, MSc in Biomedical Engineering, Politecnico di Torino (Co-advisor with L. Ridolfi)
- Apr, 2017 C. Gallo, *Effects of arrhythmias on the arterial fluid dynamics*, MSc in Aerospace Engineering, Politecnico di Torino (Advisor with L. Ridolfi)
- Mar, 2017 F. Antigo, *Determinants of the evolution of aortic aneurysms. Multivariate analysis of the Database of the Hypertension Center "Città della Salute e della Scienza di Torino" Hospital*, MSc in Biomedical Engineering, Politecnico di Torino (Co-advisor with L. Ridolfi)
- Dec, 2016 T. Rossi, *Numerical analysis of surface pattern for a clutch*, MSc in Mechanical Engineering, Politecnico di Torino (Thesis abroad: Karlsruhe Institute of Technology/Polito, Advisors: S. Scarsoglio, B. Frohnäpfel, J. Kriegseis, and A. Codrignani)
- Dec, 2016 R. Giunta, *Hydraulic losses in Fontan procedure for the treatment of the univentricular heart in infants. A numerical study*, MSc in Biomedical Engineering, Politecnico di Torino (Advisor with D. Gallo, L. Ridolfi, and U. Morbiducci)
- Oct, 2016 F. Cazzato, *From time-series to complex networks: application to the cerebrovascular patterns in atrial fibrillation*, MSc in Biomedical Engineering, Politecnico di Torino (Co-advisor with L. Ridolfi)
- Oct, 2016 F. Imerti, *Lattice-Boltzmann numerical simulation of a rod in the sub-critical turbulent regime*, MSc in Aerospace Engineering, Politecnico di Torino (Thesis abroad: École Centrale de Lyon/Polito, Advisors: S. Scarsoglio, R. Arina, and E. Lévêque)
- Jul, 2016 A. Aprile, *Modeling and simulation of irregular sea spectra*, MSc in Aerospace Engineering, Politecnico di Torino (Thesis abroad: NASA JPL CalTech/Polito, Advisors: R. Arina, S. Scarsoglio and M. B. Quadrelli)
- Apr, 2016 G. Iacobello, *New insights into spatial characterization of turbulent flows: a complex network-based analysis*, MSc in Aerospace Engineering, Politecnico di Torino
- Dec, 2015 E. Siuni, *Elastodynamics of collapsible tubes*, MSc in Civil Engineering, Politecnico di Torino (Co-advisor with C. Camporeale and L. Ridolfi)
- Jul, 2014 G. Barletta, *A complex network approach for the analysis of turbulent flows. Application to homogeneous isotropic turbulence*, MSc in Aerospace Engineering, Politecnico di Torino
- Dec, 2012 A. Boscolo, *Perturbative and mean pressure field in the 3D boundary layer*, MSc in Aerospace Engineering, Politecnico di Torino (Co-advisor with D. Tordella)
- Jul, 2011 M. Mastinu, *Collective behaviour of 3D linear perturbation waves in shear flows*, MSc in Mathematical Engineering, Politecnico di Torino (Co-advisor with D. Tordella)

Bachelor Degree

2010-present Advisor of 60 Bachelor Final Projects for the BSc in Aerospace and Mechanical Engineering, Politecnico di Torino

Overall Research Impact

H-Index Scopus: 18, WOS: 18
Citations Scopus: 808, WOS: 744
Documents Scopus: 65, WOS: 68

National and International Research Projects and Grants

- 2024 **Post-Graduate Research Fellowship**
Research Topic: "Effects of cardiac arrhythmias on the cerebral circulation: multiscale hemodynamic analysis". Fellowship awarded to Luca Congiu.
Role: Supervisor (with L. Ridolfi)
- 2023-present **MUR PRIN 2022**
Title: "Cerebral fluid dynamics: investigating the association between atrial fibrillation and dementia through an integrated in silico-in vivo framework".
Role: Principal Investigator
- 2023-present **ESA PhD co-funded Research Project Open Space Innovation Platform (OSIP)**
Title: "Optimizing countermeasures against cardiovascular deconditioning and cerebral hemodynamics changes in long-term human spaceflights".
Role: Principal Investigator
- 2023 **Post-Graduate Research Fellowship**
Research Topic: "Gravity effects on the cardiovascular system: multiscale hemodynamic analysis in micro- and hypergravity conditions for human spaceflight". Fellowship awarded to Francesco Tripoli.
Role: Supervisor (with L. Ridolfi)
- 2022-2023 **Post-Graduate Research Fellowship**
Research Topic: "Cerebral hemodynamics during cardiac arrhythmias: CFD analysis of lenticulostriate arteries through high-resolution magnetic resonance imaging". Fellowship awarded to Francesco Tripoli.
Role: Supervisor (with L. Ridolfi)
- 2020-present **Research Project**
Title: "Computational fluid dynamics of the lenticulostriate arteries during atrial fibrillation", Università degli Studi di Torino, Politecnico di Torino, Universitair Medisch Centrum Utrecht.
Role: Scientific advisor

- 2019-2020 **Post-Doc Research Fellowship**
Research Topic: "Application of the complex network theory for the analysis of wall turbulence (CNTURB)". Fellowship awarded to Giovanni Iacobello.
Role: Supervisor (with L. Ridolfi)
- Dec, 2017 **FFABR Grant**
MIUR Funds for financing fundamental research activities.
- 2017 **Post-Graduate Research Fellowship "Ernesto e Ben Omega Petrazzini", Accademia delle Scienze di Torino**
Research Topic: "Effects of acceleration on human blood circulation for aerospace applications". Fellowship awarded to Caterina Gallo.
Role: Supervisor
- 2017-2020 **Compagnia di San Paolo - UNITO Excellent Young PI Research Project, CSTO160444**
Title: "Cerebral hemodynamics during atrial fibrillation", Università degli Studi di Torino and Politecnico di Torino.
Role: Participant
- 2016 **Post-Graduate Research Fellowship "Ernesto e Ben Omega Petrazzini", Accademia delle Scienze di Torino**
Research Topic: "Advanced techniques for the analysis of turbulent flows: application to the complex network theory". Fellowship awarded to Giovanni Iacobello.
Role: Supervisor
- 2013-2014 **ISCRA Project Class C HP10CGPPAA, IsC15 (CINECA)**
Title: "Acoustic and turbulence numerical simulations", Politecnico di Torino.
Role: Participant
- 2012-2013 **ISCRA Project Class C HP10CKRIG3, IsC09 (CINECA)**
Title: "Technical assessment of MPI code and development and comparison of hybrid openMP/MPI code for the solution of the Navier-Stokes equations", Politecnico di Torino.
Role: Participant
- 2010-2011 **ISCRA Project Class A HP10AJ2GTB, IsA01 (CINECA)**
Title: "Turbulent mixing and diffusion", Politecnico di Torino.
Role: Participant
- 2009-2012 **MITOR Project between MIT and Politecnico di Torino**
Title: "Long term interaction in flow systems".
Role: Participant

- 2005-2010 **Regione Piemonte Project E59**
 Title: "New concepts and methodologies for the development of innovative ultralight aircrafts", Politecnico di Torino.
 Role: Participant
- 2006-2010 **Internationalization Programme between the Politecnico di Torino and the University of Washington**
 Title: "Joint actions in the field of fundamental and applied fluid dynamics".
 Role: Participant
- 2005-2007 **PRIN**
 Title: "Mean-long term evolution of hypersonic jets: visualization, density and concentration measurements, numerical simulation. Application to the stellar jets".
 Role: Participant

Computer Skills

Software Environments	Matlab, Mathematica, R
Programming Languages	Fortran 77, C
Commercial Software	Altair HyperMesh, Abaqus, MSC Nastran, MSC Fatigue
Markup Languages	LaTeX, HTML
Web Development	Languages: PHP, CSS, JS. Database Management System: MySQL. Content Management System: Joomla
OS	Microsoft Windows, Linux

Linguistic Knowledge

Italian	Native
English	Very Good (First Certificate in English, December 1999)
French	Basic

Education

- Mar, 2008 **Doctor of Philosophy, Fluid Dynamics**
 Department of Aeronautics and Space Engineering, Politecnico di Torino (XX Cycle), Torino, Italy
 Thesis: Hydrodynamic linear stability of the two-dimensional bluff-body wake through modal analysis and initial-value problem formulation
 Advisor: Prof. D. Tordella

- Dec, 2004 **Master of Science, Mathematical Engineering**
Politecnico di Torino, Torino, Italy
Thesis: Linear stability of non-parallel flows. Multiscale analysis applied to the bluff-body wake
Advisor: Prof. D. Tordella
Marks: 110/110 *cum laude*
- Oct, 2002 **Bachelor of Arts, Mathematics for Engineering Sciences**
Politecnico di Torino, Torino, Italy
Thesis: Finite element formulation of eddy currents in terms of the magnetic potential
Advisor: Prof. M. Repetto
Marks: 105/110
- Jul, 1999 **High School diploma**
Liceo Scientifico N. Copernico, Torino, Italy
Marks: 100/100