CURRICULUM VITAE - Giovanni Paolo ROMANO

Current Position:

Full Professor at the Civil and Industrial Engineering Faculty of "La Sapienza" University in Roma, scientific group ING-IND / 06 (Fluid-mechanics), from 1/1/2005. Currently at Mechanical and Aeronautical Engineering Department.

Scientific activities:

* coordinating and joining investigations in fundamental and applied fluid-mechanics leading to more than 100 papers published on national and international journals and presented at national and international conferences;

* participation to more than 80 national and international conferences and workshops in about 25 years;

* invited lecturer at 5 international conferences and 2 national conferences;

* member of the Editorial Advisory Board and referee for the journal Experiments in Fluids;

* referee for the journals Europhysics Letters, Physics of Fluids, Journal of Turbulence, Journal of Visualization, Experimental Thermal and Fluid Science, European Journal of Mechanics, Measurement Science and Technology, Flow Turbulence and Combustion;

* member of Advisory Commitees of the International Symposium on Applications of Laser Techniques in Fluid Mechanics (Lisbon conferences) e of the International Workshop on PIV.

Research Interests:

- Experimental Fluid Mechanics by using advance optical techniques as Particle Image Velocimetry, Laser Induced Fluorescence, Laser Doppler Anemometry, Global Phase Doppler

- Continuous and pulsating jets study and control with attention to Reynolds number, initial and boundary condition effects and mixing in the near field

- Small-scale turbulence, dissipation and isotropy

- Wing and car model wakes investigations in wind tunnel together with aerodynamic forces determination

- Turbulent boundary layers on smooth and rough walls

- Fluid-mechanics application to biomedical devices as heart valves, pumps and ventilation for surgery applications

- Two phase flows and sprays

Main publications:

International Journals

A1. Doppler signal predictions using the Lorenz theory for applications to the measurements in two phase flows.
A. Cenedese, F. Cioffi, G.P. Romano
Archives of Mechanics 41,6, pp. 821-835, 1989

A2. Experimental testing of Taylor's hypothesis by LDA.
A. Cenedese, F. Di Felice, G.P. Romano
Experiments in Fluids 11, pp. 351-358, Springer & Verlag, 1991

A3. LDA spectral measurements in a turbulent boundary layer.
A. Cenedese, A. Costantini, G.P. Romano
Experimental, Thermal and Fluid Science 5, pp.281-289, Elsevier Science, 1992

A4. PIV and LDA velocity measurements near walls and in the wake of a delta wing.
G.P. Romano
Optics and Lasers in Engineering 16, pp. 293-309, Elsevier Science, 1992

A5. LDA and PIV velocity measurements in free jets.
A. Cenedese, G. De Michele, G. Doglia, G.P. Romano, G. Tanzini
Experimental Thermal and Fluid Science, 9, pp.125-134, Elsevier Science, 1994

A6. Effect of noise in laser Doppler anemometry.
S. Gerosa, G.P. Romano
Mechanical Systems and Signal Processing, 8(2) pp. 229-242, Academic Press, 1994

A7. Comparison between classical and three colours PIV in a wake flow
A. Cenedese, G.P. Romano
Journal of Flow Visualization and Image Processing, vol. 1, pp 371-384, Begell House, 1994

A8. The flow field at the outlet of a circular jet
A. Cenedese, G. Doglia, D. Pietrogiacomi, G.P. Romano
The tip vortex at the trailing edge of a delta wing
A. Cenedese, M.L. De Prizio, G.P. Romano
Album of Flow Visualization, 11, pp 5-6, 1994

A9. Experimental analysis of fluid-dynamic chaotic signals into oscillating containers
A. Cenedese, F. Paolucci, G.P. Romano
European Journal of Mechanics, vol. 14,1, pp.1-28, Gauthier-Villars, 1995

A10. Analysis of two-point velocity measurements in near-wall flows
G.P. Romano
Experiments in Fluids, 20 pp. 68-83, 1995

A11. The use of colors in PIV
G.P. Romano
A11a. Proceedings of the 1st International Workshop on PIV, Fukui, 1995
A11b. Atlas of Flow Visualizations (co-author A. Cenedese), Vol.3, N.15, pp. 83-98, 1996

A12. Investigation on time scales in a low Reynolds jet flow using Particle Tracking Velocimetry
G.P. Romano
Applied Scientific Research, vol.56, pp. 209-220, 1996

A13. Lagrangian velocity measurements by PTV
A. Cenedese, G. Querzoli, G.P. Romano, P. Viotti
ERCOFTAC Bullettin, N. 31, pp. 23-27, 1996

A14. Second and third-order longitudinal velocity structure functions in a fully developed turbulent channel flow
R.A. Antonia, T. Zhou, G.P. Romano
Physics of Fluids, vol. 9 (11), pp. 3465-3471, 1997

A15. Investigation on particle trajectories and lagrangian statistics at the outlet of a circular jet
G.P. Romano
Experimental Thermal and Fluid Science, vol. 17, pp.116-123, 1998

A16. The investigation of an unstable convective flow using optical methods
M. Miozzi, G. Querzoli, G.P. Romano
Physics of Fluids, vol.10 (11), pp. 2995-3008, 1998

A17. A comment on the "linear" law of the wall for fully developed turbulent channel flow
A. Cenedese, G.P. Romano, R.A. Antonia
Experiments in Fluids, 25, 2, pp. 165-170, 1998

A18. Scaling of longitudinal velocity increments in a fully developed turbulent channel flow.
R.A. Antonia, P. Orlandi, G.P. Romano
Physics of Fluids, vol.10 (12), pp. 3239-3241, 1998

A19. Evaluation of LDA temporal and spatial velocity structure functions in a low Reynolds number turbulent channel flow
G.P. Romano, R.A. Antonia, T. Zhou
Experiments in Fluids, 27, 4, pp. 368-377, 1999

A20. Experimental study of breaking wave flow field past a submerged hydrofoil by LDV
P. De Blasi, G.P. Romano, F. Di Felice, F. Lalli
International Journal of Offshore and Polar Engineering, 10, 4, pp. 263-268, 2000

A21. Velocity measurements in a turbulent round jet using PTV: the effect of tracer particles
G.P. Romano, S. Zincone
A21a. Journal of Vizualization, vol. 3 (2), pp. 175-185, 2000
A21b. Proceedings of the 3rd International Workshop on PIV, Santa Barbara, 1999

A22. Investigation of the near wake of a propeller using particle image velocimetry
A. Cotroni, F. Di Felice, G.P. Romano, M. Elefante
A22a. Experiments in Fluids, 29, 7, pp. S227-S236, 2000
A22b. Proceedings of the 3rd International Workshop on PIV, Santa Barbara, 1999

A23. Longitudinal and transverse structure functions in a turbulent round jet: effect of initial conditions and Reynolds number
G.P. Romano, R.A. Antonia
Journal of Fluid Mechanics, 436, pp. 231-248, 2001

A24. The effect of boundary conditions by the side of the nozzle of a low Reynolds number jet
G.P. Romano
Experiments in Fluids, vol.33, pp. 323-333, 2002

A25. Structure functions and energy dissipation dependence on Reynolds number
G. Boffetta, G.P. Romano
Physics of Fluids, vol. 14 (10), pp. 3453-3458, 2002

A26. Small scale turbulence characteristics of two-dimensional bluff body wakes
R.A. Antonia, T. Zhou, G.P. Romano
Journal of Fluid Mechanics, 459, pp. 67-92, 2002

A27. Windowing, re-shaping and re-orientation interrogation windows in particle image velocimetry for the investigation of flows with large velocity gradients
D. Di Florio, F. Di Felice, G.P. Romano
A27a. Measurement Science and Technology, 13 (7), pp. 953 - 962, 2002
A27b. Proceedings of the 4th International Workshop on PIV, Gottingen, 2001

A28a. *Rms* Axial Velocity in the Wake of a Marine Propeller
M. Felli, F. Di Felice, G.P. Romano
Journal of Vizualization, vol. 5(2), pp. 118, 2002

A28b. Vorticity and Streamlines in the Wake of a Marine Propeller
M. Felli, F. Di Felice, G.P. Romano
Journal of Vizualization, vol. 5(3), pp. 208, 2002

A29. PIV and PTV measurements downstream an artificial heart valve
A. Balducci, M. Grigioni, G. Querzoli, G.P. Romano, C. Daniele, G. D'Avenio, V. Barbaro
A29a. Experiments in Fluids, 36 (1), pp. 204-213, 2004
A29b. XI International Symposium on Appl. of Laser Anem. to Fluid Mech., Lisbon, 2002

A30. Measurements of molecular carbon radical concentrations by saturated laser induced fluorescence in hydrocarbon flames at atmospheric pressure
M. Marrocco, M. D'Apice, S. Giammartini, M. Magaldi, G.P. Romano
A30a. Proceedings of SPIE, International Society of Optical Engineering, vol. 5149, pp187-196, 2002
A30b. International Symposium on Combustion, 2002

A31. Application of PIV and PTV techniques to study propensity for thrombogenesis in PHV M. Grigioni, C. Daniele, A. Balducci; G. D'Avenio, G. Querzoli, G.P. Romano
Advances in Bioengineering, vol. 7, pp. 261-270, 2003.

A32. Particle-fluid interactions in a horizontal near-wall turbulent flow
M. Righetti, G.P. Romano
Journal of Fluid Mechanics, 505, pp. 93-121, 2004

A33. Experimental investigation of the propeller wake at different loading conditions by particle image velocimetry
F. Di Felice, D. Di Florio, Felli M., G.P. Romano
Journal of Ship Research, 48 (2) pp. 168-190, 2004

A34. Robust evaluation of the dissimilarity between interrogation windows in image velocimetry
M. Falchi, G. Querzoli, G.P. Romano
Experiments in Fluids, 41(1) pp. 21-33, 2006

A35. Experimental and numerical investigation of flow control on bluff bodies by passive ventilation
M. Falchi, G. Provenzano, D. Pietrogiacomi, G.P. Romano
Experiments in Fluids, 41(2) pp. 279-293, 2006

A36. Jet-Wall Interaction in Shallow Waters
F. Lalli, M. Falchi, G.P. Romano, A. Romolo, R. Verzicco
International Journal of Offshore and Polar Engineering, Vol. 17, 2, pp. 1–5, 2007

A37. Spatial resolution of PIV for the measurement of turbulence
P. Lavoie, G. Avallone, F. De Gregorio, G. P. Romano, R. A. Antonia
Experiments in Fluids, 43(1) pp. 39-51, 2007

A38. Evaluation of the performance of high-speed PIV compared to standard PIV in a turbulent jet
M. Falchi, G. P. Romano
Experiments in Fluids, 47(3) pp. 509-526, 2009

A39. Experimental analysis of a turbulent boundary layer at high Reynolds numbers
Aloisio G., Di Felice F., Romano G. P
Journal of Turbulence, Vol. 10 (31), pp.1–19, 2009

A40. Investigation on vortex dynamics downstream moving leaflets by means of Robust Image Velocimetry
G.P. Romano, G. Querzoli, M. Falchi
Experiments in Fluids, 47(4-5) pp. 827-838, 2009

A41. On the flow field generated by a gradually varying flow through an orifice
M. Falchi, G. Querzoli, G.P. Romano
A39a. VI European Fluid Mechanics Conference, Stockholm, 2006
A39b. European Journal of Mechanics, 29, pp. 259-268, 2010

A42. Effect of grain size on mobility of granular flows of angular rock fragments: an experimental determination
B. Cagnoli, G.P. Romano
Journal of Volcanology and Geothermal Research, 193, pp. 18-24, 2010

A43. Experimental investigation of a free-surface turbulent jet with Coanda effect
M. Miozzi, F. Lalli, G.P. Romano
Experiments in Fluids, 49(1) pp. 341-343, 2010

A44. Small-scale statistics, local isotropy and axial symmetry in the far field of turbulent round jets: a comparison between PIV and HWA
P. Burattini, M. Falchi, G.P. Romano, R.A. Antonia
Measurement Science and Technology, 21**,** 125402, 2010

A45. Pressures at the base of dry flows of angular rock fragments as function of grain size and flow volume: experimental results
B. Cagnoli, G.P. Romano
Journal of Volcanology and Geothermal Research, 196, pp.236-244, 2010

A46. Simultaneous size and velocity measurements of cavitating micro-bubbles using interferometric imaging
G. Lacagnina, S. Grizzi, M. Falchi, F. Di Felice, G.P. Romano
Experiments in Fluids, 50(4) pp. 1153-1167, 2011

A47. Effects of flow volume and grain size on mobility of dry granular flows of angular rock fragments: A functional relationship of scaling parameters
B. Cagnoli, G.P. Romano
Journal of Geophysical Research, 117, B2, B02207, doi:10.1029/2011JB008926, 2012

A48. Steady and pulsating pipe flows in normal and pathological conditions
S. Colonia, G.P. Romano
A48a. Euromech Colloquium 529, Cardiovascular Fluid Mechanics, Cagliari, 2011
A48b. Journal of Fluid Engineering, 136 (11), from 111201-1 to 111201-15, 2014

A49 Experimental investigations on secondary structures in a fully developed turbulent jet
A. Capone and G.P. Romano
a. ETC 13, Warsaw 2011
b. Journal of Physics: Conference Series, J. Phys.: Conf. Ser. 318 032045 doi:10.1088/1742-6596/318/3/032045

A50. The effect of Reynolds number on mixing and entrainment of turbulent round jets
A. Capone, A. Soldati, G.P. Romano
Experiments in Fluids, 54 pp. 1434-1447, DOI 10.1007/s00348-012-1434-x, 2013

A51. Granular pressure at the base of dry flows of angular rock fragments as a function of grain size and flow volume: A relationship from laboratory experiments
B. Cagnoli, G.P. Romano
Journal of Geophysical Research, Vol. 117, B10, B10202, doi:10.1029/2012JB009374, 2012

A52. PIV investigations on optical magnification and small-scales in the near field of an orifice jet
G. Lacagnina, G.P. Romano
Experiments in Fluids, Vol. 56:5, DOI 10.1007/s00348-014-1872-8, 2015

A53. Particle Image Velocimetry Investigation Of Mixing Enhancement Of Non-Circular Sharp Edge Nozzles
A. Hashiehbaf, G.P. Romano
International Journal of Heat and Fluid Flow Vol. 44, pp 208–221, 2013 http://dx.doi.org/10.1016/j.ijheatfluidflow. 2013.05.017

A54. Experimental investigation on interactions among fluid and rod-like particles in a turbulent pipe jet by means of Particle Image Velocimetry
A. Capone, A. Soldati, G.P. Romano
Experiments in Fluids, Vol.56:1, DOI 10.1007/s00348-014-1876-4, 2015

A55. An experimental investigation on mixing enhancements in non-circular sharp edge nozzles using the entropy production concept
A.Hashiehbaf, G.P. Romano
Journal of Turbulence, Vol. 15, No. 7, pp.411–428, 2014

A56. Biomimetic Wings
G. Sisinni, D, Pietrogiacomi, G.P. Romano
a) CIMTEC 2012, Montecatini
b) Advances in Science and Technology Vol. 84 (2013) pp 72-77

A57. Aeroacoustics and aerodynamics of impinging supersonic jets: Analysis of the screech tones
G. Sinibaldi, G. Lacagnina, L. Marino, G.P. Romano
Physics of Fluids, Vol. 25, 086104, 2013

A58. Vertical segregations in flows of angular rock fragments: Experimental simulations of the agitation gradient within dense geophysical flows
B. Cagnoli, G.P. Romano
Journal of Volcanology and Geothermal Research, Vol. 265 (2013) pp. 52–59

Books

AA1. Blood Flow – Modelling and Diagnostics
Chapter: Heart Valves: Modelling Experiments (pp. 163-203)
Advanced Course on Blood Flow – Modelling and Diagnostics
Edited by A. Kowalewski, A. van Steenhoven, A. Nowicki, Abiomed, 2005

AA2. Handbook of Experimental Fluid Mechanics
Chapter C2: Measurements of Turbulent Flows. ISBN: 9783540251415
Edited by C. Tropea and J.F. Foss, Springer- Verlag, 2007

AA3. The Particle Image Velocimetry - Characteristics, Limits and Possible Applications
A. Ciarravano, E. Binotti, A. Bruschi, V. Pesarino, F. Lalli, G.P. Romano
Chapter 14: Full field measurements in a river mouth by means of Particle Tracking Velocimetry
Edited by G. Cavazzini, ISBN 978-953-51-0625-8, Publisher: InTech, 2012

International Editions

B1. Turbulent intensity evaluation with PIV.
A. Cenedese, G.Palmieri, G.P.Romano
Selected papers V Intenational Symposium on applications of laser anemometry to fluid mechanics. pp. 451-463, R.J. Adrian ed, Springer & Verlag, 1991

B2. Comparison between PIV and LDA velocity measurement in a convective boundary layer.
A. Cenedese, G. Querzoli, G.P. Romano
Imaging in Transport Processes, capitolo 26, pp.309-320, Sideman and Hijikata eds, 1993

B3. Neural net for trajectories recognition in a flow.
A. Cenedese, A. Paglialunga, G.P. Romano, M. Terlizzi
Selected papers VI International Symposium on application of laser anemometry to fluid mechanics, pp. 195-209, R.J. Adrian ed, Springer & Verlag, 1993

B4. Particle-flow interactions in the near wall region of a turbulent open channel flow
M. Righetti, G.P. Romano
Advances in Turbulence V, pp. 440-444, Eds R. Benzi, Kluwer Academic Publishers, 1995

B5. Interaction between river mouth flow and marine structures: numerical and experimental investigation
F.Lalli, B. Gallina, M.Miozzi, G.P. Romano
Selected papers of the International symposium on shallow flows (16-18 june, 2003 Delft, The Netherlands), Gerhard H. Jirka, Wim S.J. Uijttewaal Eds, 2004

B6. PIV measurements of turbulence decay behind a grid
G. Avallone, F. De Gregorio, G.P. Romano
EUROPIV 2 workshop (march 2003 Zaragoza, Spain), M.Stanislas, J. Westerweel, J. Kompenhans Eds, Springer & Verlag, 2004

B7. PTV for the characterization of turbulent channel flow: comparison of experimental and simulation approaches
M. Moroni, J. Nogueira, M. Miozzi, G.P. Romano, A. Cenedese, P.A. Rodriguez, A. Lecuona
EUROPIV 2 workshop (march 2003 Zaragoza, Spain), M. Stanislas, J. Westerweel, J. Kompenhans, Eds, Springer & Verlag, 2004

B8. Experimental analysis of a turbulent boundary layer at high Reynolds numbers

Aloisio G., Dolcini A., Di Felice F., Romano G. P

Progress in Turbulence II, Proceedings of the iTi Conference in Turbulence 2005, Springer Proceedings in Physics, Vol. 109, Oberlack, M.; Khujadze, G.; Guenther, S.; Weller, T.; Frewer, M.; Peinke, J.; Barth, S. (Eds.), pp. 151-154, 2007.

The TIPR algorithm uses the two intensity measurements recorded in the spatial domain and the Fourier domain, respectively, to recover the amplitude and phase in the spatial domain with high quality. Although the TIPR algorithm can achieve good results, in some case, it is difficult to obtain two intensity measurements simultaneously in the both spatial and Fourier domains. Therefore, the SIPR algorithm is proposed, and it can recover the phase from single-intensity measurement in the Fourier domain with some prior knowledge. However, the SIPR method has low probability of successful recovery The Lorenz equations for fluid convection in a two-dimensional layer heated from below are. dx. dt.Â Note the interesting parallel with the universal aspects of the Sierpinski carpet (Section I.B.1.a). It is not yet known if the attractor of any differential equation contains a universal template. The PoincarÃ©â€“Bendixson theorem prohibits fractal attractors for differential equations in the plane, but many other classical ordinary differential equations in at least three dimensions exhibit similar fractal attractors in certain parameter ranges. View chapter Purchase book. Read full chapter. URL: https://www.sciencedirect.com/science/article/pii/B0122274105002593. Mathematical Modeling. A new correlation for the prediction of frictional pressure drop for two-phase flow in pipes is suggested which is simple and more convenient to use than other methods. To determine their reliabilities, this correlation and fourteen correla- tions from the literature were checked against a data bank containing 9300 measurements of frictional pressure drop for a variety of fluids and flow conditions.Â Although it is still not possible to predict theoretically the mechanisms occurring in two-phase flow, a considerable number of empirical correlations for the prediction of frictional pressure drop exist. For conditions outside the range of the original data from which these correlations were derived, however, deviations of several 100% between Fig.