

Dr. Volfango Bertola

Born in Pavia (Italy) on July 30th, 1972

E D U C A T I O N & C A R E E R S U M M A R Y

- 2004-present Lecturer, School of Engineering, University of Edinburgh, United Kingdom.
- 2009-2010 Visiting Professor, Dipartimento di Energetica, Politecnico di Torino, Italy.
- 2001-2004 Research Associate, Laboratoire de Physique Statistique de l'Ecole Normale Supérieure, Paris, France.
- 2000-2001 Junior engineer, ESTRO Engineering S.r.l., Milan, Italy.
- 1996-2000 Ph.D. student, Dipartimento di Energetica, Politecnico di Milano. Supervisors: A. Muzzio, G. Sotgia. Thesis title: "Indagine sperimentale del flusso bifase acqua-aria in regime intermittente entro condotti orizzontali" (An Experimental Investigation of Two-Phase Intermittent Air-Water flow in Horizontal Pipes). UIT prize for the best Ph.D. thesis on thermofluids. Nominated for the 2004 Eurotherm Young Scientist Prize.
- 1990-1995 M.Sc. (Laurea), Mechanical Engineering, Politecnico di Milano (Italy). Final mark: 96/100. Thesis title: "Flussi bifase in condotti orizzontali: misure di frazione di vuoto e di velocità" (Two-Phase Flows in Horizontal Pipes: Void Fraction and Velocity Measurements).

R E S E A R C H

Major achievements

- Explanation of the physical mechanism of the anti-rebound effect of polymer additives on liquid drops impacting onto hydrophobic surfaces
- Introduction of a dimensionless number to characterize the competition between the capillary pressure and the yield stress in viscoplastic fluids.
- Solution of the paradox of infinite propagation speed in the diffusion equation (with E. Cafaro).
- Proof of the incorrectness of the minimum entropy production theorem as proposed by Prigogine (with E. Cafaro).

Current interests

- Drop impact on homo-thermal and heated surfaces
- Rheology and experimental thermo-fluid dynamics of soft condensed matter (polymer gels, foams, granular media, etc.)
- Equilibrium and irreversible thermodynamics
- Analytical and approximate solutions of thermo-fluid dynamic problems
- Fire modelling and fire safety engineering
- Cryogenic two-phase flow
- Measurement techniques

International collaborations

- Prof. Alidad Amirfazli (University of Alberta, Edmonton, Canada).
- Prof. Emilio Cafaro, Prof. Mario De Salve, Prof. M. Masoero, Prof. P. Tronville (Politecnico di Torino, Italy).
- Prof. Luca Cortelezzi (McGill University, Montreal, Canada)
- Prof. Marco Marengo (University of Bergamo, Italy).
- Prof. M. Misale, Prof. G. Tanda (University of Genoa, Italy).

Post-doctoral Research Associates supervision

- 2008-2009 Dr. Michael Smith. Currently Research Associate at Nottingham University (UK).

PhD supervision

- 2006-2009 Guy German. Currently Research Associate at Yale University (USA). Distinctions: C.N. Davies Award, Aerosol Society; J.M. Lessel Award, Royal Society of Edinburgh.

Research Grants

As Principal Investigator

- Royal Academy of Engineering Global Research Award - Experimental investigation of cryogenic two-phase flow (2009) - £19,590.
- EPSRC First Grant (EP/E005950/1) - Visualisation of individual polymer molecules inside impacting drops (2006-2009) - £239,103.
- Royal Society Paul Instrument Fund - construction of an elongational viscometer (2006-2007) - £25,200.
- Nuffield Foundation, Newly Appointed Lecturers grant (NAL/32355) - Capillary flow of yield-stress fluids (2006-2007) - £ 5,000.
- Other small grants (<£5,000 each) from various institutions and charities (total amount: £21,240).

As Co-Investigator

- Regione Piemonte and A.T.S. "Catena del Freddo" (Casale Monferrato, Italy) - Energy efficiency of refrigeration (2009-2011) - P.I. Prof. Marco Masoero (Politecnico di Torino, Italy) - Euro 1,107,000.
- Italian Ministry for University and Research (MIUR) - PRIN 2008/886 Area 09 (2009-2012), P.I. Prof. Giovanni Tanda (University of Genoa, Italy) - Euro 106,262.

A P P L I E D R E S E A R C H & C O N S U L T I N G

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|-----------|---|
| 2009 | Cold Car S.r.l. (Casale Monferrato, Italy): <ul style="list-style-type: none">□ Development of eutectic cooling system for delivery vehicles |
| | Metfon S.r.l. (Orbassano, Italy): <ul style="list-style-type: none">□ Feasibility study of a micro-CHP system for the casting process. |
| | Europa Consulting S.r.l. (Torino, Italy): <ul style="list-style-type: none">□ Assessment of energy savings in heating systems using the thermo-regulating additive C5. |
| 2008 | Conjunct Ltd. (Edinburgh, UK): <ul style="list-style-type: none">□ Optimisation of micro-lenses fabrication process |
| 1996-2001 | E.S.T.R.O. Engineering S.r.l. (Milan, Italy): <ul style="list-style-type: none">□ Design and contractors supervision of CHP plants for district heating (10-30 MW)□ Disposal of MSW and hazardous waste |
| 1999-2000 | Progres S.r.l. (Genoa, Italy): <ul style="list-style-type: none">□ Design of heating/cooling systems for military applications |

T E A C H I N G

Professional training and certifications

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| 2007 | Postgraduate student supervision training, University of Edinburgh, College of Science & Engineering |
| 2006 | Professional Certificate in University Teaching (Stages 1&2), University of Edinburgh, UK |
| 2002 | Qualification to the national list of academic teaching candidates (Maître de Conférences), French ministry for Education |

Academic teaching

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| 2009-2010 | Politecnico di Torino
Combustion systems (Energy Engineering) |
| 2005-2010 | University of Edinburgh
Thermodynamics 3 (Mechanical Engineering)
Energy Systems 4 (Mechanical Engineering) |
| 2002-2003 | University "Pierre et Marie Curie" (Paris VI)
Rheology of Complex Fluids (DESS Interfaces-Génie des Milieux Divisés) |
| 1999-2000 | Politecnico di Milano
Thermodynamics and Heat Transfer (Mechanical Engineering) |

Project supervision

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| 2004-10 | University of Edinburgh (UK)
Supervision of 1 MSc Dissertation, 6 MEng Projects, 9 BEng Projects, and 5 summer placements |
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2009-10 **Politecnico di Torino (Italy)**
Supervision of 1 MSc Dissertation and 1 summer placement
2001-02 **Ecole Normale Supérieure, Paris (France)**
Supervision of 1 MSc Project (DEA) and 1 placement (Maîtrise)
1998-2000 **Politecnico di Milano (Italy)**
Supervision of 4 MSc Dissertations (Tesi di Laurea)

Recognition

- Nominated for the Edinburgh University Student Association Teaching Award (2008/09 & 2009/10).

A D M I N I S T R A T I O N

Academic

University of Edinburgh, School of Engineering

2007-present: Director of Studies (Mechanical Engineering)
2005-present: Coordinator of ERASMUS exchanges with the University of Genoa
2005-2009: 2nd Year Course Organizer (Mechanical Engineering)
2005-present: Member of Safety Committee (Sanderson & Kenneth Denbigh Buildings)
2005-2006: Member of the Special Circumstances Committee

Conference organisation

2008: Member of the Organising Committee of the 21st Scottish Fluid Mechanics Meeting (Edinburgh, UK, 22 May 2008)
2004: Direction of CISM advanced course n°295 "Modeling and Experimentation in two-phase flow" at the International Centre for Mechanical Sciences (Udine, Italy, 13-17 September 2004)
2002: Member of the Organising Committee of the Eurotherm Seminar n° 70: "Physical and Mathematical Modelling of Fires in Enclosures and Fire Protection" (Turin, Italy, 7-8 Ottobre 2002)
2002: Direction of CISM advanced course n°268 "Modeling and control of two-phase flow phenomena" at the International Centre for Mechanical Sciences (Udine, Italy, 9-13 September 2002)

E X T E R N A L R E C O G N I T I O N

Prizes - Awards

2010 Best paper award - ILASS 2010, Brno, Czech Republic, 6-8 September 2010.
2009 Best presentation award - Viscoplastic Fluids: From Theory to Application, Limassol, Cyprus, 1-5 November 2009
2001 Prize of the Italian Union of Thermal-Fluid Dynamics (UIT) for the best Ph.D. thesis in Thermofluids

Fellowships

2009 Visiting Professor Fellowship (Politecnico di Torino, Italy)
2009 Lagrange Fellowship (ISI Foundation, Italy)
2003-2004 Marie Curie Individual Fellowship (European Union)
2001-2002 Post-doctoral fellowship of the Ecole Normale Supérieure, Paris (France).
1998 EU fellowship to attend the advanced school "Turbulence: Theoretical Framework and Industrial Applications".
1997-2000 Doctoral fellowship of the Italian government.

Editorial Boards

2010 Guest Editor, The Open Thermodynamics Journal, Special Issue "Thermodynamics and Heat Transfer in Fires"
Since 2007 The Open Thermodynamics Journal

Scientific Committees

8th World Congress of Chemical Engineering, Montréal, Canada, 23-27 August 2009
2nd H₂-age When, Where, Why, Palermo, Italy, 16- 19 October 2005

Referee for International Journals

Acta Mechanica, Chemical Engineering Communications, Experimental Thermal and Fluid Science, Experiments in Fluids, Fire Safety Journal, International Journal of Heat and Mass Transfer, International Journal of Heat and Technology, International Journal of Thermal Sciences, Journal of Computational and Applied Mathematics, Journal of Heat Transfer (Trans. ASME), Journal of Process Mechanical Engineering, Optical Engineering, Physics of Fluids, Proceedings of the Royal Society A, The Open Thermodynamics Journal.

Referee for International Conferences

14th International Heat Transfer Conference, Washington, USA, August 8-13, 2010

12th International Heat Transfer Conference, Grenoble, France, August 18-23, 2002

Other

- Member of the Institute for Liquid Atomization and Spray Systems - Europe
- External reviewer for NSERC Strategic Project Grants (SPG) program, Canada
- Referee for the Career Promotion Committee of the University of Nebraska, USA (2008)
- Referee for the Israel Science Foundation (2003)
- Contributing editor for the AIAA Student Journal (2001-2004)

Invited presentations

"Fires in Tunnels: Learning From Disasters", 27th UIT National Heat Transfer Conference, Reggio Emilia, Italy, 23-25 June 2009.

"Experimental techniques and flow visualization in two-phase flow" (4 lectures), Modelling and experimentation of two-phase flow - CISM advanced course, Udine (Italy), 13-17 September 2004

"Experimental techniques and flow visualization in two-phase flow" (4 lectures), Modeling and control of two-phase flow phenomena - CISM advanced course, Udine (Italy), 9-13 September 2002

"Indagine sperimentale del flusso bifase acqua-aria in regime intermittente entro condotti orizzontali", 19th UIT National Heat Transfer Conference, Modena (Italy) 25 June 2001

Invited seminars

Institute of Technology, Oxford Brookes University (UK), 11th February 2010.

Centre of Smart Interfaces, Darmstadt University of Technology (Germany), 25th November 2009.

School of Engineering, Queen Mary University London (UK), 7th September 2009.

School of Engineering, University of Oxford (UK), 22nd July 2008.

Department of Fluid Dynamics and Aerodynamics, Darmstadt University of Technology (Germany), 30th May 2008.

Department of Mechanical Engineering, Imperial College of Science, Technology and Medicine, London (UK), 7th May, 2008.

Department of Applied Physics, University of Granada (Spain), 14th September 2007.

Dipartimento di Termoenergetica e Condizionamento Ambientale, University of Genoa (Italy), 12th April 2007.

Enhancement of thermofluid science applications by macromolecular additives (4 seminars) - Dipartimento di Termoenergetica e Condizionamento Ambientale, University of Genoa (Italy), April 2006.

School of Physics, University of Edinburgh (UK), 20th March 2006

Department of Mechanical and Systems Engineering, University of Newcastle-Upon-Tyne (UK), 12th October, 2004.

Department of Chemical Engineering, Imperial College of Science, Technology and Medicine, London (UK), 20th September, 2004.

IBM Research Center, Zurich (Switzerland), 27th August 2004.

GDPC, University of Montpellier II (France), 26th April 2004.

Books

V. Bertola (ed.), Modelling and experimentation in two-phase flow, *CISM Courses and Lectures n°450*, Springer Wien New York, 2003.

Book Chapters

V. Bertola, "Two-Phase Flow Measurement Techniques", in V. Bertola (ed.), Modelling and experimentation in two-phase flow, *CISM Courses and Lectures n°450*, Springer Wien New York, 2003.

Peer-reviewed Journals

1. E. Cafaro, V. Bertola, Fires in tunnels: experiments and modelling, *The Open Thermodynamics Journal*, Sp. Issue "Thermodynamics and Heat Transfer in Fires", 2010 (in press).
2. V. Bertola, E. Cafaro, Exergy analysis of compartment fires, *The Open Thermodynamics Journal*, Sp. Issue "Thermodynamics and Heat Transfer in Fires", 2010 (in press).
3. V. Bertola, E. Cafaro, Diffusion phenomena and thermodynamics, *Physics Letters A*, vol. 374, pp. 3373-3375, 2010.
4. G. German, V. Bertola, The spreading behaviour of viscoplastic drops, *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, vol. 366, pp. 18-26, 2010.
5. V. Bertola, The effect of polymer additives on the dynamic contact angle of impacting drops, *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, vol. 363, pp. 135-140, 2010.
6. G. German, V. Bertola, The free fall of viscoplastic drops, *Journal of Non-Newtonian Fluid Mechanics*, vol. 165, pp. 825-828, 2010.
7. M. Smith, V. Bertola, Effect of polymer additives on the wetting of impacting droplets, *Physical Review Letters*, vol. 104, 154502, 2010 (**Highlighted as Editor's suggestion - Featured in "Physics - spotlighting exceptional research", May 2010**).
8. G. German, V. Bertola, Formation of viscoplastic drops by capillary breakup, *Physics of Fluids*, vol. 22, 033101, 2010.
9. G. German, V. Bertola, Review of drop impact models and validation with high-viscosity Newtonian fluids, *Atomization and Sprays*, vol. 19, pp. 787-807, 2009.
10. G. German, V. Bertola, Impact of shear-thinning and yield-stress drops on solid substrates, *Journal of Physics: Condensed Matter*, vol. 21, 375111, 2009.
11. M. Annoni, M. Monno, V. Bertola, M. Goletti, The role of polymeric additives in water jet cutting, *International Journal of Machining and Machinability of Materials*, vol. 6, pp. 285-304, 2009.
12. V. Bertola, E. Cafaro, Deterministic-stochastic approach to compartment fire modelling, *Proceedings of the Royal Society A*, vol. 465, pp. 1029-1041, 2009.
13. V. Bertola, An experimental study of bouncing Leidenfrost drops: comparison between Newtonian and viscoelastic liquids, *International Journal of Heat and Mass Transfer*, vol. 52, pp. 1786-1793, 2009.
14. V. Bertola, Wicking with a yield stress fluid, *Journal of Physics: Condensed Matter* vol. 21, 035107, 2009.
15. V. Bertola, E. Cafaro, Incorporating boundary conditions in the heat conduction model, *International Journal of Heat and Mass Transfer*, vol. 52, pp. 644-646, 2009.
16. V. Bertola, Some applications of controlled drop deposition on solid surfaces, *Recent Patents on Mechanical Engineering*, vol. 1, pp. 167-174, 2008 (**Invited paper**)
17. V. Bertola, E. Cafaro, A Formulation of the H-Functional for Heat Conduction, *The Open Thermodynamics Journal*, vol. 2, pp 59-60, 2008.
18. V. Bertola, E. Cafaro, Hamiltonian formulation of heat conduction: integral transform method approach, *The Open Thermodynamics Journal*, vol. 2, pp 22-24, 2008.
19. V. Bertola, E. Cafaro, A critical analysis of the minimum entropy production theorem and its application to heat and fluid flow, *International Journal of Heat and Mass Transfer*, vol. 51, pp. 1907-1912, 2008.

20. V. Bertola, E. Cafaro, On the speed of heat, *Physics Letters A*, vol. 372, pp. 1-4, 2007.
21. V. Bertola, E. Cafaro, Analytical solution for the Hagen-Poiseuille flow of a hard sphere gas with nonlinear shear viscosity, *Journal of Statistical Mechanics: Theory and Experiment*, P06017, 2007.
22. V. Bertola, A note on the effects of the liquid viscoelasticity and wall slip on foam drainage, *Journal of Physics: Condensed Matter*, vol. 19(24), 246105, 2007.
23. V. Bertola, E. Cafaro, Thermal instability of viscoelastic fluids in horizontal porous layers as initial value problem, *International Journal of Heat and Mass Transfer*, vol. 49(21-22), pp 4003-4012, 2006.
24. V. Bertola, E. Cafaro, Analytical function theory approach to the heat transfer problem of a cylinder in cross-flow at small Péclet numbers, *International Journal of Heat and Mass Transfer*, Vol 49(17-18), pp. 2859-2863, 2006.
25. V. Bertola, E. Cafaro, Geometric approach to laminar convection, *Journal of Thermophysics and Heat Transfer*, vol. 19(4), pp.581-583, 2005.
26. V. Bertola, K. Sefiane, Controlling secondary atomization during drop impact on hot surfaces by polymer additives, *Physics of Fluids*, vol. 17(10), 108104, 2005
27. V. Bertola, E. Cafaro, Intermediate asymptotic behaviour of fluid flows by scale-size analysis, *Proceedings of the Royal Society A*, 2005, vol. 461, pp. 755-760, 2005.
28. V. Bertola, Drop impact on a hot surface: effect of a polymer additive, *Experiments in Fluids*, vol. 37, pp. 653-664, 2004.
29. V. Bertola, A time-average technique for gas-liquid flow structure reconstruction from local void fraction measurements, *Journal of Flow Visualization and Image Processing* vol. 11, pp. 121-139, 2004.
30. V. Bertola, The structure of gas-liquid flow in a horizontal pipe with abrupt area contraction, *Experimental Thermal and Fluid Science* vol. 28(6), pp. 505-512, 2004.
31. V. Bertola, E. Cafaro, Cooling fin design, *Journal of Thermophysics and Heat Transfer* vol. 17(4), pp. 536-538, 2003.
32. V. Bertola, F. Bertrand, H. Tabuteau, D. Bonn, P. Coussot, Wall slip and yielding in pasty materials, *Journal of Rheology*, vol. 47(5), pp. 1211-1226, 2003.
33. V. Bertola, E. Cafaro, Scale-size analysis of heat and mass transfer correlations, *Journal of Thermophysics and Heat Transfer*, vol. 17(2), pp. 293-295, 2003.
34. V. Bertola, B. Meulenbroek, C. Wagner, C. Storm, A. Morozov, W. Van Saarloos, D. Bonn, Experimental evidence for an intrinsic route to polymer melt fracture phenomena: a nonlinear instability of visco-elastic flow poiseuille flow, *Physical Review Letters* 024502-1, vol. 90(2), 2003.
35. B. Meulenbroek, C. Storm, V. Bertola, C. Wagner, D. Bonn, W. Van Saarloos, An intrinsic route to melt fracture in polymer extrusion: a weakly nonlinear subcritical instability of viscoelastic Poiseuille flow, *Physical Review Letters* 024502-1, vol. 90(2), 2003.
36. V. Bertola, E. Cafaro, Analogy between Pipe Flow of Non-Newtonian Fluids and 2D Compressible Flow, *Journal of Non-Newtonian Fluid Mechanics*, vol 109(1), pp. 1-12, 2003.
37. V. Bertola, F. Moschella, Slug Velocity and Liquid Layer Thickness Before an Abrupt Contraction in Horizontal Gas-Liquid Flow, *Experiments in Fluids*, vol. 34(1), pp. 150-153, 2003.
38. V. Bertola, Experimental Characterization of Gas-Liquid Intermittent Subregimes by Phase Density Function Measurements, *Experiments in Fluids*, vol. 34(1), pp. 122-129, 2003.
39. V. Bertola, Slug Velocity Profiles in Horizontal Gas-Liquid Flow, *Experiments in Fluids*, vol. 32(6), pp. 722-727, 2002.
40. V. Bertola, E. Cafaro, Slug Frequency Measurement Techniques in Horizontal Gas-Liquid Flow, *AIAA Journal*, vol. 40(5), pp. 1010-1012, 2002.
41. V. Bertola, Optical Probe Visualization of Air-Water Flow Structure through a Sudden Area Contraction, *Experiments in Fluids*, vol. 32(4), pp. 481-486, 2002.

Conference papers

1. M. Smith, V. Bertola, The anti-rebound effect of flexible polymers on impacting drops, *Proc. ILASS 2010 - 23rd European Conference on Liquid Atomization and Spray Systems*, Brno, Czech Republic, 6-8 September 2010. (**ILASS 2010 best paper award**)
2. L. De Giorgi, V. Bertola, E. Cafaro, C. Cima, Controlling numerical solutions by entropy analysis, *Proc. 14th International Heat Transfer Conference IHTC14*, Washington, DC, USA, 8-13 August 2010.
3. L. De Giorgi, V. Bertola, E. Cafaro, C. Cima, M. De Salve, B. Panella, Heat transfer in liquid nitrogen flows inside smooth pipes, *Proc. 14th International Heat Transfer Conference IHTC14*, Washington, DC, USA, 8-13 August 2010.
4. M.I. Smith, V. Bertola, Velocity measurements inside impacting drops of dilute polymer solutions, *DIPSI Workshop 2010 on Droplet Impact Phenomena & Spray Investigation*, Bergamo, Italy, 27-28 May, 2010.
5. W. Millett, V. Bertola, Forced oscillations of yield-stress drops, *Proc. Italian Society of Rheology National Conference*, Trieste, Italy, 23-26 May 2010.
6. T. Taurino, V. Bertola, E. Cafaro, Evaluation of tunnel fires consequences: a stochastic thermodynamic approach, *ASME-ATI-UIT 2010 Conference on Thermal and Environmental Issues in Energy Systems*, Sorrento, Italy, 16-19 May, 2010.
7. L. De Giorgi, C. Cima, E. Cafaro, V. Bertola, Thermal performance evaluation of an innovative double glazing window, *Colloquium Fluid Dynamics 2009*, Prague, Czech Republic, 21-23 October 2009.
8. B. Zhou, V. Bertola, E. Cafaro, P. Tronville, Effect of slip flow on the pressure drop in fibrous filters, *Proc. Filtech 2009*, Wiesbaden, Germany, 13-15 October 2009.
9. V. Bertola, E. Cafaro, M. De Salve, W. Millett, B Panella, An experimental study of boiling in liquid nitrogen horizontal flow, *Proc. 11th UK Heat Transfer Conference*, London, 6-8 September 2009.
10. G. German, V. Bertola, Yield stress drops: creation, free-fall, and impact on a solid surface, *Proc. 7th World Conference on Experimental Heat Transfer, Fluid Mechanics and Thermodynamics*, Cracow, Poland, 28 June - 3 July 2009.
11. E. Cafaro, V. Bertola, Fires in tunnels: learning from disasters, *Proc. 27th UIT National Heat Transfer Conference*, Reggio Emilia, Italy, June 23-25, 2009 (**Invited paper**).
12. V. Bertola, Viscoelastic Leidenfrost drops, *Proc. 22nd European Conference on Liquid Atomization and Spray Systems*, Como, Italy, 8-10 September 2008.
13. V. Bertola, Laminar flow in micro-channels of arbitrary cross-section, *Proc. 19th International Symposium on Transport Phenomena*, Reykjavik, Iceland, 17-21 August, 2008
14. V. Bertola, E. Cafaro, Chaotic convection of a viscoelastic fluid in porous media, *Proc. 23rd UIT National Heat Transfer Conference*, Palermo, Italy, June 23-25, 2008
15. V. Bertola, The capillary flow of a yield-stress fluid, *Colloquium Fluid Dynamics 2007*, Prague, Czech Republic, 24-26 October 2007
16. V. Bertola, Capillary flow of yield-stress fluids in microchannels, *Proceedings of FEDSM2006 2006 ASME Joint U.S. - European Fluids Engineering Summer Meeting*, , vol.2, pp. 569-573, Miami, FL, July 17-20, 2006
17. V. Bertola, Controlling drop rebound and secondary atomization by polymer additives, *Colloquium Fluid Dynamics 2005*, Prague, 19-21 October 2005
18. V. Bertola, K. Sefiane, Bouncing Leidenfrost Drops, *Proc. 9th UK National Heat Transfer Conference*, Manchester, 5-6 September 2005.
19. V. Bertola, K. Sefiane, The reflection of liquid droplets off hot surfaces, *Proc. 23rd UIT National Heat Transfer Conference*, Parma, Italy, June 20-22, 2005.
20. V. Bertola, Controlling drop impact on cold and hot surfaces by polymer additives, *Proc. 3rd International Symposium on Two-Phase Flow Modelling and Experimentation*, Pisa (Italy), 22-24 September 2004.
21. V. Bertola, Impact of water drops containing a polymer additive on hot surfaces, *Proc. 22nd UIT National Heat Transfer Conference*, Genova, Italy, June 21-23, 2004.

22. V. Bertola, Possibilities of hydrogen production from waste disposal, *Proc. Hypothesis V*, Porto Conte (Italy), 7-11 September, 2003.
23. V. Bertola, F. Moschella, The Effect of Area Contractions on Slug Velocity and Liquid Film Thickness in Gas-Liquid Horizontal Flow, *Proc. 8th International Conference on Multiphase Flow in Industrial Plants*, Alba, Italy, 18-20 September 2002.
24. V. Bertola, E. Cafaro, Entropy and Information in Heat Conduction, *Proceedings 12th International Heat Transfer Conference*, vol. 2, pp. 39-44, Grenoble, France, August 18 - 23, 2002.
25. V. Bertola, E. Cafaro, Effect of surfactant addition on heat transfer between a flat surface and a liquid impinging jet, *Proc. 20th UIT National Heat Transfer Conference*, Acquafredda di Maratea, Italy, June 27-30, 2002.
26. V. Bertola, D. Bonn, W. van Saarloos, Experimental Characterization of the Melt Fracture Instability in Non-Newtonian Flow, *Proc. 20th UIT National Heat Transfer Conference*, Acquafredda di Maratea, Italy, June 27-30, 2002.
27. V. Bertola, E. Cafaro, Formal Analogy between Non-Newtonian Flows and Compressible Flows, *AIAA Paper 2002-3078*, 2002.
28. V. Bertola, E. Cafaro, C. Cima, A. Testa, Cooling Properties of a Dilute Aqueous Polymeric Solution, *AIAA Paper 2002-0497*, 2002.
29. V. Bertola, Visualization by Optical Probes of Air-Water Flow Structure, *Proc. Colloquium Fluid Dynamics 2001*, Prague, October 24-26, 2001.
30. V. Bertola, On the Measurement of Slug Frequency in the Horizontal Gas-Liquid Flow, *AIAA Paper 2001-3035*, 2001.
31. V. Bertola, E. Cafaro, Analogia gasdinamica per flussi non-newtoniani, *Proc. 19th UIT National Heat Transfer Conference*, Modena, Italy, June 25-27, 2001.
32. V. Bertola, E. Cafaro, A. Testa, Simulazione di flussi bidimensionali mediante film di sapone, *Proc. 19th UIT National Heat Transfer Conference*, Modena, Italy, June 25-27, 2001.
33. V. Bertola, E. Cafaro, Studio sperimentale dell'influenza del diametro del condotto sulla transizione fra moto a tappi e moto a fiotti nel flusso orizzontale acqua-aria, *Proc. 19th UIT National Heat Transfer Conference*, Modena, Italy, June 25-27, 2001.
34. V. Bertola, Un processo a ridotto impatto ambientale per la conversione energetica di combustibili alternativi, *Atti X Convegno Tecnologie e sistemi energetici complessi "Sergio Stecco"*, Genoa, Italy, June 21-22, 2001.
35. V. Bertola, E. Cafaro, Statistical Characterization of Subregimes in Horizontal Intermittent Gas-Liquid Flow, *Proc. 4th International Conference on Multiphase Flow*, New Orleans, LA, USA, May 27 - June 1, 2001.
36. V. Bertola, A. Crescenti, Un processo di pirolisi a minimo impatto ambientale per la conversione energetica dei rifiuti, *Atti 3^o Convegno Nazionale sull'utilizzazione termica dei rifiuti*, Abano Terme, Italy, 30 May - 1 June 2001.
37. V. Bertola, E. Cafaro, Un reattore di tipo innovativo per la pirolisi dei rifiuti, *Atti 3^o Convegno Nazionale sull'utilizzazione termica dei rifiuti*, Abano Terme, Italy, 30 May - 1 June 2001.
38. S. Arosio, V. Bertola, Two-Phase Flow Pressure Drops in Horizontal Pipes with Sudden Area Contraction, *Proc. 7th International Conference on Multiphase Flow in Industrial Plants*, pp. 249-258, Bologna, Italy, September 14-16, 2000.
39. S. Arosio, V. Bertola, G. Sotgia, Velocity Profiles in Horizontal Intermittent Air-Water Flow, *Proc. 3rd European Thermal Sciences Conf.*, pp. 985-989, Heidelberg, Germany, September 10-13, 2000.
40. V. Bertola, An Experimental Investigation on the Intermittent Air-Water Flow in Horizontal Pipes, in Maione U., Majone Lehto B., Monti R. (eds.) *New Trends in Water and Environmental Engineering for Safety and Life*, Balkema, Rotterdam, 2000.
41. S. Arosio, V. Bertola, Il meccanismo delle cadute di pressione attraverso un brusco restringimento nel flusso orizzontale liquido-gas in moto intermittente, *Proc. 18th UIT National Heat Transfer Conference*, Cernobbio, Italy, June 26-28, 2000.

42. V. Bertola, G. Sotgia, Frequenze caratteristiche nel flusso bifase orizzontale ed adiabatico in regime intermittente, *Proc. 18th UIT National Heat Transfer Conference*, Cernobbio, Italy, June 26-28, 2000.
43. S. Arosio, V. Bertola, G. Sotgia, Characterisation of Intermittent Flow from Phase Density Function Measurements, in Celata G.P., di Marco P., Shah R., *Two-Phase Flow Modelling and Experimentation 1999*, Vol. 3, pp 1501-1508, Edizioni ETS, Pisa, 1999
44. S. Arosio, V. Bertola, M. Fossa, Comparative Analysis of Intermittent Air-Water Flow Structure by Means of Different Measurement Techniques, in Celata G.P., di Marco P., Shah R., *Two-Phase Flow Modelling and Experimentation 1999*, Vol. 3, pp 1359-1364, Edizioni ETS, Pisa, 1999
45. S. Arosio, V. Bertola, Two-Phase Flow Structure in Horizontal Pipes with Sudden Area Contraction, *Proc. 15th UIT National Heat Transfer Conference*, Vol.1, pp 447-457, Torino, Italy, 1997.

Conference abstracts

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2. M.I. Smith, V. Bertola, Rapid dewetting of dilute polymer solutions: the case of impacting droplets, *Proc. 2nd International Soft Matter Conference*, Granada, Spain, 5-8 July 2010.
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4. G. German, V. Bertola, Yield stress drops, *7th Euromech Fluid Mechanics Conference*, Manchester (United Kingdom), 14-18 September 2008
5. V. Bertola, Non-Newtonian drops, *Non-Newtonian Club Meeting*, Edinburgh, 3 July 2008.
6. G. German, V. Bertola, Controlling drop deposition using complex fluids, *22nd Scottish Fluid Mechanics Meeting*, Edinburgh, 22 May 2008.
7. D. Quintero Marín, V. Bertola, Drop impact dynamics of DNA solutions, *22nd Scottish Fluid Mechanics Meeting*, Edinburgh, 22 May 2008.
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