

## Curriculum Vitae

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Massimiliano Rossi

### Personal Data

Date of birth: 30.11.1978  
Place of birth: Fabriano, Italy  
Nationality: Italian  
Address: Willibaldstr. 15  
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### Academic Positions

2009 - today Research Associate, Institute for Fluid Mechanics and Aerodynamics, Bundeswehr University Munich, Germany  
2007 - 2009 Postdoctoral Fellow, Laboratory for Aero- and Hydrodynamics, Delft University of Technology, The Netherlands  
2003 - 2006 Ph.D. Student, Mechanical and Thermal Measurement Research Group, Università Politecnica delle Marche, Italy

### Education

- Ph.D. in Mechanical Engineering, Università Politecnica delle Marche, 13.12.2006
- Master Degree in Mechanical Engineering, Università Politecnica delle Marche, 17.03.2003
- Classical High School Diploma, Liceo Classico F. Stelluti, Fabriano, 1997

### Research Interests

- Experimental techniques: velocimetry (PIV, Micro-PIV, 3D-PTV, LDV), temperature (LIF, thermochromic liquid crystals), surface/interface reconstruction methods.
- Microfluidics: mixing, acoustofluidics, bubble-streaming flow, droplets, particle dynamics in microsystems.
- Applications: biological flows, microfluidic fuel cells, bioreactors, flow control.

### Languages

Italian (native), English (fluent), German (Proficient), Spanish (Proficient).

## Participation to National and International Research Projects

- 2013 - today DFG-funded Research Project (Einzelantrag): "Flow Control through ultrasound-driven microbubble streaming" (as Co-PI)
- 2013 - today DFG-funded Research Project (Einzelantrag): "Characterization of the response of microfluidic fuel cells to complex 3D fluid dynamics patterns" (as Co-PI)
- 2011 - today DFG-funded Research Project (Einzelantrag): "Investigations of particle dynamics and their interaction with the carrying flow in micro systems"
- 2009 - 2014 DFG-funded Research Project (Forschergruppe 856): "Mikrosysteme für partikuläre Life-Science-Produkte"
- 2005 - 2008 EU-funded Research Project (EU-Sixth Framework Programme): "SMART-BioMEMS"
- 2002 - 2006 EU-funded Thematic Network: "PIVNET II"
- 2004 - 2005 MIUR-Funded Research Project (PRIN 2004): "Experimental study directed to the optimization of the procedure for the metrological characterization of water-meters following the EU Directive on measuring instruments (MID)"

## Teaching Activity

- 2009 - today Supervision and co-supervision of undergraduate and graduate students in the Microfluidics's group at the Institute for Fluid Mechanics and Aerodynamics, Bundeswehr University Munich
- 2011 - 2014 Organization of the Micro-PIV Short Course at the Institute for Fluid Mechanics and Aerodynamics, Bundeswehr University Munich
- 2003 - 2006 Assistance in Lectures of Mechanical and Thermal Measurement, Department of Mechanical Engineering, Università Politecnica delle Marche

## Elected and Appointed Offices and Honors

- Reviewer for the Italian Agency for Evaluation of Research (ANVUR), since 2013
- Member of the Scientific Committee of the European Conference on Microfluidics
- Best poster prize, Burgersdag 2007, Delft, The Netherlands
- Best poster prize. Lab-on-chip Mini Symposium, November 17-18, 2005, Siegen, Germany

## Publications and Reviewer Activity

Author of over 70 peer-reviewed papers and conference proceedings.

Frequent reviewer for: Biomedical Microdevices, Biomicrofluidics, Experimental Thermal and Fluid Science, Experiment in Fluids, Journal of Biomechanics, Lab on a Chip, Measurement Science and Technology, Microfluidics and Nanofluidics.

## Selected publications

- [1] Volk A, Rossi M, Kähler CJ, Hilgenfeldt S and Marin A, *Growth control of sessile microbubbles in PDMS devices*, Lab on a Chip 15 (24), 4607-4613, 2015
- [2] Barnkob R, Kähler CJ and Rossi M, *General defocusing particle tracking*, Lab on a Chip 15 (17), 3556-3560, 2015
- [3] Marin A, Rossi M, Rallabandi B, Wang C, Hilgenfeldt S and Kähler CJ, *Three-dimensional phenomena in microbubble acoustic streaming*, Physical Review Applied 3 (4), 041001, 2015
- [4] Muller PB, Rossi M, Marin AG, Barnkob R, Augustsson P, Laurell T, Kähler CJ and Bruus H, *Ultrasound-induced acoustophoretic motion of microparticles in three dimensions*, Phys Rev E, 88, 023006, 2013
- [5] Pennella F, Rossi M, Ripandelli S, Rasponi M, Mastrangelo F, Deriu MA, Ridolfi L, Kähler CJ and Morbiducci U, *Numerical and experimental characterization of a novel modular passive micromixer*, Biomed Microdevices 14 (5), 849-862, 2012
- [6] Kreppenhofer K, Li JS, Popp L, Segura R, Rossi M, Kähler CJ, Levkin PA and Guber A, *Microfluidic Chip for Generating Gradient Polymer Films for Biological Applications*, Procedia Engineering 47, 458-461, 2012
- [7] Rossi M, Lindken R and Westerweel J, *Optimization of multiplane PIV for wall shear stress and wall topography characterization*, Exp Fluids 48 (2), 211-223, 2010
- [8] Lindken R, Rossi M, Große S and Westerweel J, *Micro-Particle Image Velocimetry (PIV): Recent developments, applications, and guidelines*, Lab Chip 9 (17), 2551-2567, 2009
- [9] Rossi M, Lindken R, Hierck BP and Westerweel J, *Tapered microfluidic chip for the study of biochemical and mechanical response at subcellular level of endothelial cells to shear flow*, Lab Chip 9 (10), 1403-1411, 2009
- [10] Kaminsky R, Morbiducci U, Rossi M, Scalise L, Verdonck P and Grigioni M, *Time-resolved PIV technique for high temporal resolution measurement of mechanical prosthetic aortic valve fluid dynamics*, Int J Artif Organs 30 (2), 153-162, 2007