

# Publications

Maurizio Santini

## Journal Papers

- [1] SANTINI M., Fest-Santini Stephanie, and Cossali Gianpietro. Experimental study of vortices and cavities from single and double drop impacts onto deep pools. *EUROPEAN JOURNAL OF MECHANICS. B, FLUIDS*, 62:21–31, 2017.
- [2] SANTINI M., Marzorati Stefania, Fest-Santini Stephanie, Trasatti Stefano, and Cristiani Pierangela. Carbonate scale deactivating the biocathode in a microbial fuel cell. *JOURNAL OF POWER SOURCES*, pages 1–8, 2017.
- [3] Lorenzi Massimo, Mitroglou Nicholas, SANTINI M., and Gavaises Manolis. Novel experimental technique for 3D investigation of high-speed cavitating diesel fuel flows by X-ray micro computed tomography. *REVIEW OF SCIENTIFIC INSTRUMENTS*, 88:033706–1–033706–11, 2017.
- [4] Koukouvinis Phoevos, Mitroglou Nicholas, Gavaises Manolis, Lorenzi Massimo, and SANTINI M. Quantitative predictions of cavitation presence and erosion-prone locations in a high-pressure cavitation test rig. *JOURNAL OF FLUID MECHANICS*, 819:21–57, 2017.
- [5] Mitroglou Nicholas, Lorenzi Massimo, SANTINI M., and Gavaises Manolis. Application of X-ray microcomputed tomography on highspeed cavitating diesel fuel flows. *EXPERIMENTS IN FLUIDS*, 57:1–14, 2016.
- [6] SANTINI M., Fest-Santini Stephanie, and Foltyn Patrick. On the local mass transfer rates around arbitrary shaped particles calculated by X-ray computed microtomography: Prospective for a novel experimental technique. *INTERNATIONAL COMMUNICATIONS IN HEAT AND MASS TRANSFER*, 79:135–139, 2016.
- [7] SANTINI M., Guilizzoni Manfredo, Lorenzi Massimo, Plamen Atanassov, Marsili Enrico, Fest-Santini Stephanie, Cristiani Pierangela, and Santoro Carlo. Three-dimensional X-ray microcomputed tomography of carbonates and biofilm on operated cathode in single chamber microbial fuel cell. *BIOINTERPHASES*, 10:1–9, 2015.
- [8] SANTINI M., Guilizzoni Manfredo, Fest-Santini Stephanie, and Lorenzi Massimo. A novel technique for investigation of complete and partial

anisotropic wetting on structured surface by X-ray microtomography. *REVIEW OF SCIENTIFIC INSTRUMENTS*, 86:1–9, 2015.

- [9] Mitroglou Nicholas, Lorenzi Massimo, SANTINI M., Gavaises Manolis, and Assanis Dennis. Application of cone-beam micro-CT on high-speed diesel flows and quantitative cavitation measurements. *JOURNAL OF PHYSICS. CONFERENCE SERIES*, 656:1–4, 2015.
- [10] SANTINI M. Fundamentals and recent advances in X-ray micro computed tomography (microCT) applied on thermal-fluid dynamics and multiphase flows. *JOURNAL OF PHYSICS. CONFERENCE SERIES*, 655:1–9, 2015.
- [11] SANTINI M. and Guilizzoni Manfredo. 3D X-ray micro computed tomography on multiphase drop interfaces: From biomimetic to functional applications. *COLLOIDS AND INTERFACE SCIENCE COMMUNICATIONS*, 1:14–17, 2014.
- [12] Guilizzoni Manfredo, SANTINI M., Lorenzi Massimo, Knisel Viola, and Fest-Santini Stephanie. Micro computed tomography and CFD simulation of drop deposition on gas diffusion layers. *JOURNAL OF PHYSICS. CONFERENCE SERIES*, 547:1–12, 2014.
- [13] Piller Marzio, Casagrande Diego, Schena Gianni, and SANTINI M. Pore-scale simulation of laminar flow through porous media. *JOURNAL OF PHYSICS. CONFERENCE SERIES*, 501:1–13, 2014.
- [14] Casagrande Diego, Piller Marzio, SANTINI M., and Schena Gianni. Characterisation of water-oil drainage process through a reservoir rock sample by digital core analysis. *INTERNATIONAL JOURNAL OF OIL, GAS AND COAL TECHNOLOGY*, 8:399–416, 2014.
- [15] SANTINI M., Fest-Santini Stephanie, and Cossali Gianpietro. LDV characterization and visualization of the liquid velocity field underneath an impacting drop in isothermal conditions. *EXPERIMENTS IN FLUIDS*, 54:1–15, 2013.
- [16] SANTINI M., Guilizzoni Manfredo, and Fest-Santini Stephanie. X-ray computed microtomography for drop shape analysis and contact angle measurement. *JOURNAL OF COLLOID AND INTERFACE SCIENCE*, 409:204–210, 2013.
- [17] SANTINI M., Cossali Gianpietro, and Marengo Marco. Thermally induced secondary drop atomisation by single drop impact onto heated surfaces. *INTERNATIONAL JOURNAL OF HEAT AND FLUID FLOW*, 29:167–177, 2008.
- [18] Cossali Gianpietro, Marengo Marco, SANTINI M., Moita Ana S., and Moreira Antonio L. Secondary atomization of water and isoctane drop impacts onto tilted heated surfaces. *EXPERIMENTS IN FLUIDS*, 43:297–313, 2007.

- [19] Cossali Gianpietro, Marengo Marco, and SANTINI M. Single-drop empirical models for spray impact on solid walls. *ATOMIZATION AND SPRAYS*, 15:699–736, 2005.
- [20] Cossali Gianpietro, Marengo Marco, and SANTINI M. Secondary atomization produced by single drop vertical impact onto heated surfaces. *EXPERIMENTAL THERMAL AND FLUID SCIENCE*, 29:937–946, 2005.

## Conference Proceedings

- [21] SANTINI M., Guilizzoni Manfredo, Lorenzi Massimo, Atanassov Plamen, Marsili Enrico, Fest-Santini Stephanie, Cristiani Pierangela, and Santoro Carlo. Micro computed tomography as powerful tool for analyzing post mortem biofilm and carbonate on operated cathode in single chamber microbial fuel cell. In *Meeting Abstracts - ECS PRiME 2016, Fall 2016*. The Electrochemical Society, 2-7 October 2016.
- [22] Jannasch A., Schnabel C., SANTINI M., Fest-Santini Stephanie, Lorenzi Massimo, Dittfeld C., Plötze K., Koch E., Matschke K., and Waldow T. Identification of fibrotic thickening as early marker of aortic valve stenosis using X-ray micro computed tomography and optical coherence tomography. In *45th Annual Meeting of the German Society for Thoracic and Cardiovascular Surgery (DGTHG), 13-16 February, Leipzig, Germany*, volume 64. Georg Thieme Verlag, February 2016.
- [23] Marzorati Stefania, Lorenzi Massimo, Fest-Santini Stephanie, SANTINI M., Trasatti Stefano P., Schievano Andrea, and Cristiani Pierangela. Quantitative study of carbonates deposition in biocathodes by 3D X-ray micro-computed tomography. In *EMC-Symposium: Materials and Devices for Energy and Environment Applications, 19-22 September 2016, Warsaw, Poland*, 19-22 September 2016.
- [24] Boito S. M., Sandaite I., Ischia B., Fabietti I., Tassis B., Zuliani G., Lorenzi M., SANTINI M., Lombardi C. M., Fedele L., and Persico N. Postmortem verification of cardiac ultrasound findings by micro-computed tomography of the fetal heart before 17 weeks' gestation. In *26th World Congress on Ultrasound in Obstetrics and Gynecology, 25-28 September 2016, Rome, Italy*, 25-28 September 2016.
- [25] Rizzi Lorenzo, Ghelfi Gabriele, and SANTINI M. Small-rooms dedicated to music: From room response analysis to acoustic design. In *140th Audio Engineering Society International Convention 2016, AES 2016*. Audio Engineering Society, June 4-7, 2016.
- [26] Mitroglou Nicholas, Lorenzi Massimo, SANTINI M., and Gavaises Manolis. X-ray micro-computed tomography for cavitating diesel nozzles. In *ILASS Europe 2016: 27th Annual Conference on Liquid Atomization and Spray Systems, 4-7 September 2016, Brighton, UK. Proceedings*, pages 1–9, Brighton, UK, 4-7 September 2016. ILASS Europe.

- [27] Marzorati Stefania, Lorenzi Massimo, Fest-Santini Stephanie, SANTINI M., and Cristiani Pierangela. MFCs biocathodes life by 3D X-ray micro-computed tomography. pages 41–41, 2016.
- [28] SANTINI M., Guilizzoni M., Lorenzi M., Fest-Santini Stephanie, and Knisel V. Anisotropic wetting on grooved surface observed by X-ray micro tomography. In *Conference Proceedings ILASS*, 8-10 September 2014.
- [29] Fest-Santini Stephanie, SANTINI M., and Cossali Gianpietro. Drop-formed vortex rings: Comparative study of fluid flow below impacting single and double drops into deep pools. In *Proceedings of the 8th World Conference on Experimental Heat Transfer, Fluid Mechanics, and Thermodynamics (ExHFT-8)*. Instituto Superior Técnico (PRT), June 16-20, 2013.
- [30] SANTINI M., Fest-Santini Stephanie, and Cossali Gianpietro. LDV characterization of the liquid velocity field underneath an impacting drop. In *16th Int. Symp. on Applications of Laser Techniques to Fluid Mechanics Lisbon, Portugal, 09-12 July, 2012*, 9-12 July 2012.
- [31] Fest-Santini Stephanie, Guilizzoni Manfredo, SANTINI M., and Cossali Gianpietro. Water drop impact into a deep pool: Influence of the liquid pool temperature. In *Proceedings of the DIPSI Workshop 2012. Droplet Impact Phenomena & Spray Investigations*, pages 16–22, Bergamo, Italy, 18 May 2012. Università degli Studi di Bergamo.
- [32] Fest-Santini Stephanie, Guilizzoni Manfredo, SANTINI M., and Cossali Gianpietro. Drop impact onto hydrophobic and superhydrophobic surfaces. In *UIT 2011. Proceedings of the XXIX UIT Heat Transfer Conference*, Torino, Italy, 20-22 June 2011. ETS.
- [33] SANTINI M., Fest-Santini Stephanie, Cossali Gianpietro, and Guilizzoni Manfredo. Drop impact onto a deep pool: Study of the crater evolution. In *ILASS Europe 2011, 24th European Conference on Liquid Atomization and Spray Systems, Estoril, Portugal, September 2011*, 5-7 September, 2011.
- [34] Fest-Santini Stephanie, Guilizzoni Manfredo, SANTINI M., and Cossali Gianpietro. Drop impacts in pools: A comparison between high speed imaging and numerical simulations. In *Proceedings of the DIPSI Workshop 2011: Droplet Impact Phenomena & Spray Investigations*, pages 22–27, Dalmine, Italy, 27 May 2011. Università degli studi di Bergamo.
- [35] SANTINI M., Cossali Gianpietro, and Marengo Marco. Splashing characteristics of multiple and single drop impacts onto a thin liquid film. In *Proceedings of the ICMF 2007, 6th International Conference on Multiphase Flow: Leipzig July 9-13 2007*, Leipzig, July 9-13 2007. ICMF.
- [36] Cossali Gianpietro, Marengo Marco, SANTINI M., and Fest-Santini Stephanie. Effect of wall effusivity on thermally induced secondary atomization of single drop impacting onto a tilted surface. In *Proceedings of the*

*10th International Conference on Liquid Atomization and Spray Systems, ICLASS-06*, pages 1–7. ILASS, August 27 - September 1, 2006.

- [37] Cossali Gianpietro, Marengo Marco, and SANTINI M. Morphology of boiling induced secondary atomisation by liquid impact on inclined walls. In *24. Congresso nazionale UIT sulla trasmissione del calore: Napoli, 21-23 giugno 2006*, pages 333–338, Pisa, Italy, 21-23 June 2006. ETS.
- [38] Moreira Antonio L., Moita Ana S., Cossali Gianpietro, Marengo Marco, and SANTINI M. Secondary atomisation of drop impactions onto heated surfaces. In *Proceedings of 13th International Symposium on Application of Laser Techniques to Fluid Mechanics*, Lisbon, Portugal, 26-29 June 2006. IST (Instituto Superior Técnico).
- [39] Cossali Gianpietro, Marengo Marco, and SANTINI M. Single and multiple drop impact onto heated surfaces. In *Spray-05: Heat and Mass Transfer in Spray Systems; Proceedings of the International Symposium on Heat and Mass Transfer in Spray Systems, Antalya, Turkey, June 5-10, 2005*. Begell House, 5-10 June 2005.
- [40] Cossali Gianpietro, Marengo Marco, and SANTINI M. Effects of wall effusivity on secondary droplet atomisation from single and multiple drop impact onto heated surfaces. In *Proceedings of the 20th Annual Conference on Liquid Atomization and Spray Systems*, pages 1–6, Orléans, France, 4-7 September 2005. ILASS Europe.
- [41] Cossali Gianpietro, Marengo Marco, and SANTINI M. Influenza dell'effusività sull'atomizzazione secondaria di gocce impattanti su superfici riscaldate. In *Atti XXII congresso nazionale sulla trasmissione del calore*, pages 537–543, Genova, Italy, 21-23 June 2004. Studio64 Edizioni.
- [42] Cossali Gianpietro, Marengo Marco, and SANTINI M. Morphology of multiple drop impacts onto heated surfaces. In *Atti XXII congresso nazionale sulla trasmissione del calore*, pages 545–552, Genova, Italy, 21-23 June 2004. Studio64 Edizioni.
- [43] Cossali Gianpietro, Marengo Marco, and SANTINI M. Impact of single and multiple drop array on a liquid film. In *19th Annual Meeting of ILASS, Nottingham (UK), 6-8 September 2004*, pages 1–8, Nottingham, UK, 6-8 September 2004. ILASS Europe.
- [44] Cossali Gianpietro, Marengo Marco, and SANTINI M. Thermomechanical behaviour of a solid plate undergoing a rapid, local cooling process. In *Atti XXII congresso nazionale sulla trasmissione del calore*, pages 193–199, Genova, Italy, 21-23 June 2004. Studio64 Edizioni.
- [45] Cossali Gianpietro, Marengo Marco, and SANTINI M. Drop array impacts on heated surfaces: secondary atomization characteristics. In *19th*

*Annual Meeting of ILASS, Nottingham (UK), 6-8 September 2004*, pages 1–8, Nottingham, UK, 6-8 September 2004. ILASS Europe.

- [46] Cossali Gianpietro, Marengo Marco, and SANTINI M. Characterisation of drop impact on heated surfaces by optical techniques. In *1st International Conference on Optical and Laser Diagnostics; London; United Kingdom; 16-20 December 2002*, volume 177. IPC, 6-20 December 2002 2003.
- [47] Cossali Gianpietro, Marengo Marco, and SANTINI M. Analysis of impact morphology of a synchronized droplet array impinging on a heated surface. In *Proceedings of the 21st UIT National Heat Transfer Conference, Udine, Italy, June 23-25, 2003*, 23-25 June, 2003.
- [48] Cossali Gianpietro, Marengo Marco, and SANTINI M. Multiple drop impact on heated surface. In *9th International Conference on Liquid Atomisation and Spray Systems (ICLASS). Sorrento, Italy, 2003. Proceedings.*, 13-17 July 2003.
- [49] Cossali Gianpietro, Di Pietro Daniele Antonio, Marengo Marco, and SANTINI M. Study of the cooling system for a microstrip particle detector for BTeV project (Fermilab). In *20th National Conference on Heat and Mass Transfer (UIT). Maratea, Italy, 2002*, 27-29 June, 2002.
- [50] Cossali Gianpietro, Marengo Marco, SANTINI M., and Watanabe Jotaro. Secondary droplet atomization from single drop impact on heated surfaces. In *18th International Conference of Institute for Liquid Atomization and Spray System (ILASS-Europe), Zaragoza, Spain, 9-11 September 2002*, pages 1–6, Zaragoza, Spain, 9-11 September 2002. ILASS (Institute for Liquid Atomization and Spray).
- [51] Cossali Gianpietro, Marengo Marco, SANTINI M., and Watanabe Jotaro. Experimental analysis of splashing after the impact of a liquid drop on a solid surface. In *57. Congresso nazionale ATI, Associazione Termotecnica Italiana: Atti: Pisa, 17-20 Settembre 2002*, pages II3–II7, Pisa, Italy, 17-20 Settembre 2002. ETS.

## Patents

- [52] SANTINI M., Paleari Stefano, Galimberti Alberto, and Quaratesi Guido. Patent number EP3035049 A1: Method of analysing ground coffee, 2014.
- [53] SANTINI M., D’Urso Gianluca Danilo, and Fest-Santini Stephanie. Patent number 0001416638: Utensile per la formazione e il distacco di gocce di fluido in condizioni supercritiche, 2013.
- [54] SANTINI M., Cossali Gianpietro, and Marengo Marco. Patent number WO/2010/021004: Device and method for drops generation, 2008.