DR.-ING. SASCHA HEITKAM

CURRICULUM VITAE Oct. 2020

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Date of Birth: 18.12.1984
Nationality: German
Family status: Married, 2 children (*2012, 2014)

WORK EXPERIENCE

2019 - now	**Researcher** Institute of Fluid Dynamics, Helmholtz-Zentrum Dresden-Rossendorf, Germany
2018 - now	**Group leader** Fluid Mechanics and Measurement, Chair of Transport Processes at Interfaces, TU Dresden and HZDR, Germany
2017 - 2019	**Guest researcher** Institute of Fluid Dynamics, Helmholtz-Zentrum Dresden-Rossendorf, Germany
2017 - 2018	**Researcher** Chair of Transport Processes at Interfaces, TU Dresden, Germany
2015 - 2017	**Researcher** Chair of Fluid Mechanics, TU Dresden, Germany
2010 - 2014	**Doctoral studies** Chair of Fluid Mechanics, TU Dresden, Germany
2011 - 2012	**Doctoral studies** Laboratoire de Physique des Solides, Univ. Paris-Sud XI, France
2009 (6 Mo)	**Student assistant** ABB Turbosystems, Baden, Switzerland
2007-2009	**Student assistant** Chair of Measurement and Testing Technique, TU Dresden
2006 (2 Mo)	**Student assistant** at AMD Saxony, Dresden, Germany
2001 - 2004	**Student assistant** at BTU Cottbus, Germany

EDUCATION

2010 - 2014	**Doctoral degree,** *summa cum laude* at TU Dresden, Germany (Prof. Dr.-Ing. Jochen Fröhlich) and Université Paris-Sud XI, France (Prof. Dr. Dominique Langevin). *Simulation of the generation of metal foam with electromagnetic fields.*
2007 - 2009	**Diploma in Power Engineering** with grade 1.1 (scale: 1-best to 5-worst), best of graduation class (out of approx. 800), TU Dresden
2005 - 2007	**Intermediate diploma in Physics,** with grade 1.7, TU Dresden **Intermediate diploma in Mechanical Engineering,** grade 1.6, TU Dresden
2004 - 2005	**Distance learning course Physics** TU Kaiserslautern, Germany
1997 - 2004	**Abitur** with grade 1.0, Max-Steenbeck-Gymnasium, Cottbus, Germany

EXPERT TRAINING

2016	Communication and Public Relations (2 days)
2015	LabVIEW Associate Developer (1 week)
2013	Foam school *Structure and dynamics of liquid foams*, Orsay, France (1 week)
2011	Introduction to computational fluid dynamics, HLRS, Stuttgart, Germany (1 week)
2010	MPI and OpenMP, ZIH, Dresden, Germany (1 week)

SCIENTIFIC AND EDUCATIONAL AWARDS

2015	**Klaus Tschira Award** for Achievements in Public Understanding of Science
2015	**ERCOFTAC DaVinci Medal** for an excellent doctoral thesis
2010	**Enno-Heidebroek Award** for excellence in the diploma studies
2010	**Festo Award** for best graduation of the year in Mechanical Engineering at TU Dresden
2004	**Young Scientists Contest:** 2nd prize (Germany) *Acoustics of foam.*
2000 - 2004	**8 Prizes** in Physics-, Mathematics- and Chemistry-Olympics

GRANTS AND FELLOWSHIPS

2020 - 2022	**IGF Project** *On-line Control of material flow in froth flotation using model-based ultrasound measurement technique*	215 k€
2020 - 2025	**Emmy-Noether Group** *Towards Fluid Dynamics of Foam and Froth.*	1.3 M€
2019 - 2022	**DFG Project** *Particle-stabilized adsorptive bubble separation of tagged enzymes.*	248 k€
2016	**Max-Buchner-Scholarship** of DECHEMA for innovative research	10 k€
2015 - 2018	**DFG Project** *Investigation of the convective instability in wet foam.*	296 k€
2014	**Support of the Université franco-allemande** for the disputation of a doctoral cotutelle de thése	1.0 k€
2013	**Support of the DAAD** for attending an international conference	1.5 k€
2011 - 2012	**Eiffel Scholarship** for research at the Université Paris-Sud XI, France	14 k€
2008	**Fellowship** of Vattenfall	1.2 k€

PROJECT PARTICIPATION

2020 - now	**Emmy-Noether group** Towards Fluid Dynamics of Foam and Froth
2015 - 2019	**DFG Project** Investigation of the convective instability in wet foam
2015	**Helmholtz Alliance** Liquid Metal Technologies (LIMTECH)
2013 - 2014	**ECEMP** European Centre for Emerging Materials and Processes Dresden
2010 - 2012	**SFB 609** Electromag. Flow Control in Metallurgy, Crystal Growth & Electrochem.

SKILLS AND TECHNIQUES

Languages	German, native tongue English, fluent in speech and writing French, basic knowledge
Programming	FORTRAN, C, MPI, OpenMP, MATLAB, LabVIEW, C#
Software	Paraview, Tecplot, ANSYS CFX, CAD, LaTeX, LinuxPC, WindowsPC
Laboratory	HWA, LDA, Pressure, PIV, PTV, LIF, Schlieren, Image analysis, Neutron radiography, Ultrasound Doppler velocimetry, Impedance tomography

TEACHING EXPERIENCE

2015 - 2020	Lecture: CFD for engineers	$\sim$ 50 students (5th year)	24 h/year
2011 - 2013	Exercise: Fluid Mechanics 2	$\sim$ 40 students (3rd year)	24 h/year
2010 - 2020	Exercise: Fluid Mechanics 1	$\sim$ 120 students (2nd year)	24 h/year
2010 - 2014	Lab course: Flow measurement	$\sim$ 20 students (4th year)	30 h/year
2010 - 2020	Diploma Theses	3 Students	300 h
2010 - 2020	Student research project	6 Students	200 h
2010 - 2020	Student workers	18 Students	$\approx$ 150 h

10 SELECTED PEER REVIEWED PUBLICATIONS

Lappan, T.; Franz, A.; Schwab, H.; Kühn, U.; Eckert, S.; Eckert, K.; & **Heitkam, S.**; X-ray particle tracking velocimetry in liquid foam flow. *Soft Matter*, **16** (8), 2093-2103, 2020.

Heitkam, S.; Rudolph, M.; Lappan, T.; Sarma, M.; Eckert, S.; Trtik, P.; Lehmann, E.; Vontobel, P. & Eckert, K. Neutron imaging of froth structure and particle motion. *Minerals Engineering*, **19**, 126-129, 2018.

Nauber, R.; Büttner, L.; Eckert, K.; Fröhlich, J.; Czarske, J. & **Heitkam, S.** Ultrasonic measurement of the bulk flow field in foams. *Physical Review E*, **97**, 013113, 2018.

Quell, A.; **Heitkam, S.**; Drenckhan, W. & Stubenrauch, C. Creating honeycomb structures in porous polymers by osmotic transport. *ChemPhysChem*, **18**, 451-454, 2017.

Heitkam, S.; Sommer, A.-E.; Drenckhan, W. & Fröhlich, J. A simple collision model for small bubbles. *Journal of Physics: Condensed Matter*, **29**, 124005, 2017.

Heitkam, S.; Drenckhan, W.; Weaire, D. & Fröhlich, J. Beam model for the elastic properties of material with spherical voids. *Archive of Applied Mechanics*, **86**, 165-176, 2016.

Heitkam, S.; Yoshitake, Y.; Toquet, F.; Langevin, D. & Salonen, A. Speeding up of sedimentation under confinement. *Physical review letters*, **110**, 178302, 2013.

Heitkam, S.; Schwarz, S. & Fröhlich, J. Simulation of the influence of electromagnetic fields on the drainage in wet metal foam. *Magnetohydrodynamics*, **48**, 0024-0028, 2012.

Heitkam, S.; Drenckhan, W. & Fröhlich, J. Packing spheres tightly: Influence of mechanical stability on close-packed sphere structures. *Physical review letters*, **108**, 148302, 2012.

Voigt, A.; **Heitkam, S.**; Büttner, L. & Czarske, J. A Bessel beam laser Doppler velocimeter. *Optics Communications*, **282**, 1874-1878, 2009.

INVITED CONFERENCE PRESENTATIONS

Heitkam, S.; Fröhlich, J. & Drenckhan, W. Why do spheres prefer fcc packing when subjected to external forces. *International Workshop on PACKING PROBLEMS*, Trinity College Dublin, Ireland, September 2 - 5, 2012.

PUBLIC MEDIA APPEARANCE

Heitkam, S. "Ein Bauplan für Hochstapler." *Bild der Wissenschaft, Sonderausgabe*, September, 2015.

Larousserie, D. "Les maths empiles les oranges." *Le Monde* (french newspaper), May, 2012.

Selected images, Cité des sciences et de l'industrie, Paris, (Science museum), News wall, 2012.

Engel, E. "Aus Schaum gebaut" *Physikjournal* **11**, 2012.