

**Publikationen in Zeitschriften (begutachtete Publikationen)**

> 2020	> 2019	> 2018	> 2017	> 2016	> 2015	> 2014	> 2013	> 2012	> 2011	> 2010	> 2009	> 2008
> 2007	> 2006	> 2005	> 2004	> 2003	> 2002	> 2001	> 2000	> 1999	> 1998	> 1997	> 1996	> 1995

**Publikationen in Zeitschriften im Jahr 2020**

- Sommerfeld, M. and Schmalfuß, S.**  
Characterisation of Particle Mixing Performance in Fluid Phase Resonance Mixers Applying the Euler/Lagrange Approach. *Advanced Powder Technology*, Vol. 31, 139 – 157 (2020)
- Duarte, C.A.R., de Souza, F.J., Venturi, D.N. and Sommerfeld, M.**  
A numerical assessment of two geometries for reducing elbow erosion. *Particuology*, Vol. 49, 117 – 133 (2020)
- Muniz, M. and Sommerfeld, M.**  
On the force competition in bubble columns: A numerical study. *International Journal of Multiphase Flow*, Vol.128, 103256 (2020)
- Shi, W., Yang, X., Sommerfeld, M., Yang, J., Cai, X., and Li, G.**  
A Modified Bubble Breakage and Coalescence Model Accounting the Effect of Bubble-Induced Turbulence for CFD-PBM Modelling of Bubble Column Bubbly Flows. *Flow, Turbulence and Combustion*, DOI 10.1007/s 10494-020-00163-9 (2020)

**Publikationen in Zeitschriften im Jahr 2019**

- Sgrott Junior, O.L. and Sommerfeld, M.**  
Influence of inter-particle collisions and agglomeration on cyclone performance and collection efficiency. *Canadian Journal Chemical Engineering*, Vol. 97, 511 – 522 (2019)
- Lain, S. and Sommerfeld, M.**  
Numerical prediction of particle erosion of pipe bends. *Advanced Powder Technology*, Vol. 30, 366 – 383 (2019)
- Sommerfeld, M., Cui, Y. and Schmalfuß, S.**  
Potentials and Constraints for the Application of CFD Combined with Lagrangian Particle Tracking to Dry Powder Inhalers. *European Journal of Pharmaceutical Sciences*, Vol. 128, 299 – 324 (2019)
- Cui, Y. and Sommerfeld, M.**  
The modelling of carrier-wall collision with drug particle detachment for dry powder inhaler applications. *Powder Technology*, Vol. 344, 741 – 755 (2019)
- Ernst, M., Sommerfeld, M. and Lain, S.**  
Quantification of preferential concentration of colliding particles in a homogeneous isotropic turbulent flow. *International Journal Multiphase Flow*, Vol. 117, 163 – 181 (2019)
- Sommerfeld, M. and Pasternak, L.**  
Advances in Modelling of Binary Droplet Collision Outcomes: A review of available results. *International Journal of Multiphase Flow*, Vol. 117, 182 – 205 (2019)
- Shi, W., Yang, X., Sommerfeld, M., Yang, J, Cai, X., Li, G., Zong, Y.**  
Modelling of mass transfer for gas-liquid two-phase flow in bubble column reactor with a bubble breakage model considering bubble-induced turbulence. *Chemical Engineering Journal*, Vol. 371, 470–485 (2019)

**Publikationen in Zeitschriften im Jahr 2018**

- Koullapis, P., Kassinos, S.C., Muela, J., Segarra, C., Rigola, J., Lehmkuhl, O., Cui, Y., Sommerfeld, M., Elcner, J., Jisha, M., Saveljic, I., Filipovic, N. Lizal, F. and Nicolaou, L.**  
Regional aerosol deposition in the human airways: The Simnhale benchmark case and a critical assessment of in silico methods. *European Journal of Pharmaceutical Sciences*, Vol. 113, 77 – 94 (2018)
- Cui, Y. and Sommerfeld, M.**  
Application of Lattice-Boltzmann Method for Analysing Detachment of Micron-Sized Particles from Carrier Particles in Turbulent Flows. *Flow Turbulence and Combustion*, Vol. 100, 271 – 297 (2018)
- Sommerfeld, M. and Qadir, Z.**  
Fluid dynamic forces acting on irregular shaped particles: Simulations by the Lattice-Boltzmann method. *International Journal Multiphase Flows*, Vol. 101, 212 – 222 (2018)

4. **Sommerfeld, M. and Lain, S.**  
Stochastic modelling for capturing the behaviour of irregular-shaped non-spherical particles in confined turbulent flows. *Powder Technology*, Vol. 332, 253 – 264 (2018)
  5. **Ariane, M., Sommerfeld, M. and Alexiadis, A.**  
Wall collision and drug-carrier detachment in dry powder inhalers: Using DEM to devise a sub-scale model for CFD calculations. *Powder Technology*, Vol. 334, 65 – 75 (2018)
  6. **Sommerfeld, M., Muniz, M. and Reichardt, Th.**  
On the importance of modelling bubble dynamics for point-mass numerical calculations of bubble columns. *Journal of Chemical Engineering of Japan*, Vol. 51, 301 – 317 (2018)
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1. **Reichardt, Th., Tryggvason, G. and Sommerfeld, M.**  
Effect of velocity fluctuations on the rise of buoyant bubbles. *Computers and Fluid*, Vol. 150, 8 – 30 (2017)
  2. **Sommerfeld, M. and Stübing, S.**  
A novel Lagrangian agglomerate structure model. *Powder Technology*, Vol. 319, 34 – 52 (2017)
  3. **Schmalfuß, S. and Sommerfeld, M.**  
Numerical and experimental analysis of Fluid Phase Resonance mixers. *Chemical Engineering Science*, Vol. 173, 570 – 577 (2017)
  4. **Lain, S. and Sommerfeld M.**  
Influence of inter-particle collisions on erosion of pipe bends. *ERCOFTAC Bulletin*, No. 112, 10 – 16 (2017)
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#### Publikationen in Zeitschriften im Jahr 2016

1. **Sommerfeld, M. and Schmalfuß, S.**  
Numerical analysis of carrier particle motion in dry powder inhaler. *ASME Journal of Fluid Engineering*, Vol. 138, April 2016, 041308-1 to 12.
  2. **Süverkrüp, R. Eggerstedt, S., Wanning, S., Kuschel, M., Sommerfeld, M. and Lamprecht, A.**  
Collisions and coalescence in droplet streams for the production of freeze-dried powders. *Colloids and Surfaces B: Biointerfaces*, Vol. 141, 443–449 (2016)
  3. **Dietzel, M., Ernst, M. and Sommerfeld, M.**  
Application of the Lattice-Boltzmann method for particle-laden flows: Point-particles and fully resolved particles. *Flow, Turbulence and Combustion*, Vol. 97, 539–570 (2016), DOI: 10.1007/s10494-015-9698-x, Jan. 2016
  4. **Sommerfeld, M. and Kuschel, M.**  
Modelling droplet collision outcomes for different substances and viscosities. *Experiments in Fluids*, Vol. 57: 187 (2016)
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#### Publikationen in Zeitschriften im Jahr 2015

1. **Sommerfeld, M. and Lain, S.**  
Parameters influencing dilute-phase pneumatic conveying through pipe systems: A computational study by the Euler/Lagrange approach. *The Canadian Journal of Chemical Engineering*, Vol. 93, 1-17 (2015); John Wiley & Sons, Inc., Oxford, UK; ISSN 0008-4034, Online ISSN: 1939-019X
  2. **Cui, Y. and Sommerfeld, M.**  
Forces on micron-sized particles randomly distributed on the surface of larger particles and possibility of detachment. *International Journal Multiphase Flow*, Vol. 72, 39 – 52 (2015); Elsevier Oxford, New York, Amsterdam, Boston, Jena u.a.; ISSN 0301-9322 (Print)
  3. **Sommerfeld, M. and Schmalfuß, S.**  
Numerical analysis of carrier particle motion in dry powder inhaler. *ASME Journal of Fluid Engineering*, Vol. 138, April 2016, 041308-1 to 12.
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#### Publikationen in Zeitschriften im Jahr 2014

1. **Horender, S., Schaub, F. und Sommerfeld, M.**  
Größenaufgelöste Messungen von Tröpfchengeschwindigkeiten in einem Elektroabscheider. *Chemie-Ingenieur Technik*, Vol. 86, 1-9 (2014); Wiley-VCH Verlag, Weinheim, ISSN 0009-286X (Print), 1522-2640 (online)
2. **Cui, Y., Schmalfuß, S., Zellnitz, S., Sommerfeld, M. and Urbanetz, N.**  
Towards the optimisation and adaptation of dry powder inhalers. *International Journal of Pharmaceutics*, Vol. 470, 120 – 132 (2014); Elsevier, Amsterdam, Berlin; ISSN 0378-5173
3. **Soriano-Palao, O.J., Sommerfeld, M. and Burkhardt, A.**  
Modelling the influence of the nozzle geometry on the primary breakup of Diesel jets. *International Journal of Spray and Combustion Dynamics*, Vol. 6, 113-145 (2014); Multi-Science, UK, ISSN 1756-8277
4. **Quintero Arboleda, B., Qadir, Z., Sommerfeld, M. and Lain, S.**  
Modelling the wall collision of regular non-spherical particles and experimental validation. *Proceedings of the ASME 2014 4th Joint US-European Fluids Engineering Division Summer Meeting; FEDSM2014; August 3-7, 2014, Chicago, Illinois, USA, Paper No. FEDSM2014-21610 (2014); Proc. ASME. 46247; Volume 1D, ISBN: 978-0-7918-4623-0; 12 pages*
5. **Lain, S. and Sommerfeld, M.**  
Prediction of horizontal gas–solid flows under different gravitational fields. *Advances in Space Research*, Vol. 54 1949–1962 (2014); Elsevier,

#### Publikationen in Zeitschriften im Jahr 2013

1. **Lain, S. and Sommerfeld, M.**  
Characterisation of pneumatic conveying systems using the Euler/Lagrange approach. *Powder Technology*, Vol. 235, 764-782 (2013)
2. **Kuschel, M. and Sommerfeld, M.**  
Investigation of droplet collisions for solutions with different solids content. *Experiments in Fluids*, Vol. 54, 1-17 (2013)
3. **Schomburg, H., Dietzel, M., Sommerfeld, M., Michaelis, B. and Teike, G.**  
Lattice-Boltzmann model with dynamic grid refinement for simulating particle deposition on a single fibre. *Journal of Computational Multiphase Flows*, Vol. 5, 1-26, 2013
4. **Focke, C., Kuschel, M., Sommerfeld, M. and Bothe, D.**  
Collision between high and low viscosity droplets: Direct Numerical Simulations and experiments. *International Journal of Multiphase Flow*, Vol. 56, 81–92 (2013)
5. **Schlauch, E., Ernst, M., Seto, R., Briesen, H., Sommerfeld, M. and Behr, M.**  
Comparison of three simulation methods for colloidal aggregates in Stokes flow: finite elements, Lattice-Boltzmann and Stokesian dynamics. *Computers and Fluids*, Vol. 86, 199-206 (2013)
6. **Schmalfuß, S., Säuberlich, R. und Sommerfeld, M.**  
Verbesserung des Fluidphasenresonanzmischers mit OpenFOAM. *Chemie-Ingenieur Technik*, Vol. 85, 1934-1940 (2013)
7. **Ernst, M., Dietzel, M. and Sommerfeld, M.**  
A lattice Boltzmann method for simulating transport and agglomeration of resolved particles. *Acta Mechanica*, Vol. 224, 2425-2449 (2013)
8. **Dietzel, M. and Sommerfeld, M.**  
Numerical calculation of flow resistance for agglomerates with different morphology by the Lattice-Boltzmann Method. *Powder Technology*, Vol. 250, 122–137 (2013)
9. **Sommerfeld, M.**  
Report on the 13th Workshop on Two-Phase Flow Predictions. *ERCOFTAC Bulletin*, No. 95 (2013)

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1. **Lain, S. and Sommerfeld, M.**  
Numerical calculation of pneumatic conveying in horizontal channels and pipes: Detailed analysis of conveying behaviour. *International Journal of Multiphase Flow*, Vol. 39, 105–120 (2012)
2. **Teike, G., Dietzel, M., Michaelis, B., Schomburg, H. and Sommerfeld, M.**  
Multiscale Lattice-Boltzmann approach for electrophoretic particle deposition. *Aerosol Science and Technology*, Vol. 46, 451-464 (2012).
3. **Schmalfuß, S., Säuberlich, R. und Sommerfeld, M.**  
CFD-Simulation und LDA-Messungen der Strömungsvorgänge beim Fluidphasenresonanz-mischen. *Chemie-Ingenieur Technik*, 84, 547 – 552 (2012)
4. **Horender, S. and Sommerfeld, M.**  
Evaporation of nearly monosized droplets of hexane, heptane, decane and their mixtures in hot air and an air/steam mixture. *International Journal of Spray and Combustion Dynamics*, Vol. 4, 123 – 154 (2012)
5. **Ernst, M. and Sommerfeld, M.**  
On the volume fraction effects on inertial colliding particles in homogeneous isotropic turbulence. *Journal of Fluids Engineering, Transactions of the ASME*, Vol. 134, March 2012, Start Page: 031302, DOI No. 10.1115/1.4005681
6. **Eggerstedt, S. N., Dietzel, M., Sommerfeld, M. Süverkrüp, R., Lamprecht, A.**  
Protein spheres prepared by drop jet freeze drying. *International Journal of Pharmaceutics* 438, 160– 166 (2012)

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#### Publikationen in Zeitschriften im Jahr 2011

1. **Weickert, M., Sommerfeld, M., Teike, G. and Iben, U.**  
Experimental and numerical investigation of the hydroerosive grinding. *Powder Technology*, Vol. 214, 1 – 13 (2011), Elsevier Verlag, Amsterdam, ISSN 0032-5910
2. **Dietzel, M. Ernst, M. and Sommerfeld, M.**  
Application of the Lattice-Boltzmann-Method in two-phase flow studies: From point-particles to fully resolved particles. *Proceedings of ASME-JSME-KSME Joint Fluid Engineering Conference 2011 (AJK2011-FED) July 2011, Hamamatsu, Shizuoka, Japan, Paper No. AJK2011-04033.*
3. **Stübing, S., Dietzel, M. and Sommerfeld, M.**  
Modelling agglomeration and the fluid dynamic behaviour of agglomerates. *Proceedings of ASME-JSME-KSME Joint Fluid Engineering Conference 2011 (AJK2011-FED) July 2011, Hamamatsu, Shizuoka, Japan, Paper No. AJK2011-12025.*
4. **Lain, S., Sommerfeld, M. and Botina L.**  
Numerical study of horizontal pneumatic conveying of powder in different gravitational environment. *Proceedings of ASME-JSME-KSME Joint Fluid Engineering Conference 2011 (AJK2011-FED) July 2011, Hamamatsu, Shizuoka, Japan, Paper No. AJK2011-12029.*
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1. **Weickert, M., Teike, G., Schmidt O. and Sommerfeld M.**  
Investigation of the LES WALE turbulence model within the lattice Boltzmann framework. *Computers and Mathematics with Applications*, Vol. 59, 2200-2214 (2010), Elsevier Ltd., Oxford, ISSN: 0898-1221
2. **Hölzer, A. and Sommerfeld, M.**  
Analysis of the behaviour of cylinders in homogeneous isotropic turbulence by Lattice-Boltzmann method. *ERCOFTAC Bulletin No.82*, 11 – 16 (2010)
3. **Horender, S. and Sommerfeld, M.**  
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1. **Hölzer, A. and Sommerfeld, M.**  
Lattice Boltzmann simulations to determine drag, lift and torque acting on non-spherical particles. *Computers and Fluids* Vol. 38, 572-589 (2009)
2. **Sommerfeld, M. and Bröder, D.**  
Analysis of hydrodynamics and micro-structure in a bubble column by planar shadow image velocimetry. *Industrial & Engineering Chemistry Research*, Vol. 48, 330-340 (2009)
3. **Odenthal, H.-J., Rexroth, C.-H., Sommerfeld, M., Ludwig, A., Baake, E. und Thess, A.**  
Optimierte Strömungssimulation ermöglicht verbesserte metallurgische Verfahrensabläufe. *Stahl und Eisen*, Jahrgang. 129, 37 – 46 (2009)
4. **Sommerfeld, M.**  
Modelling of atomisation and sprays for technical and industrial applications. *ERCOFTAC Bulletin*, No. 79 (2009)
5. **Sommerfeld, M. and Lain, S.**  
From elementary processes to the numerical prediction of industrial particle-laden flows. *Multiphase Science and Technology*, Vol. 21, 123 – 140 (2009)
6. **Ernst, M. and Sommerfeld, M.**  
Direct numerical simulations of colliding particles suspended in homogeneous isotropic turbulence. *Proceedings of the ASME Fluids Engineering Division Summer Meeting*, Vail, Colorado, Paper No. FEDSM2009-78072 (2009)
7. **Lain, S. and Sommerfeld, M.**  
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8. **Lain, S., Sommerfeld, M. and Quintero B.**  
Numerical simulation of secondary flow in pneumatic conveying of solid particles in a horizontal circular pipe *Brazilian Journal of Chemical Engineering*, Vol. 26, 583 – 594 (2009) Horender, S. and Hardalupas, Y. Turbulent particle mass flux in a two-phase shear layer. *Powder Technology*, Vol. 192, 203 – 216 (2009)

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#### Publikationen in Zeitschriften im Jahr 2008

1. **Lain, S. and Sommerfeld, M.**  
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2. **Lain, S. and Sommerfeld, M.**  
Euler/Lagrange computations of pneumatic conveying in a horizontal channel with different wall roughness. *Powder Technology*, Vol. 184, 76-88 (2008)
3. **Hölzer, A. and Sommerfeld, M.**  
New and simple correlation formula for the drag coefficient of non-spherical particles. *Powder Technology* Vol. 184, 371-365 (2008)
4. **Lain, S. and Sommerfeld, M.**  
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5. **Horender, S., Lipowsky, J., Sommerfeld, M., Schwerin, M. and Badeke, K.-U.**  
Deposition of SiO<sub>2</sub> nanoparticles produced in a turbulent H<sub>2</sub>/O<sub>2</sub> flame. *Aerosol Science and Technology*, Vol. 42, 873-883 (2008)

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1. **Prahl, L., Hölzer, A., Arlov, D., Revstedt, J., Sommerfeld, M. and Fuchs, L.**  
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2. **Bröder, D. and Sommerfeld, M.**  
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3. **Stübing, S., Horender, S., Sommerfeld, M. und Lübbers, A.**  
Untersuchung der Fluidströmung und deren Auswirkung auf die Partikelflugbahn in einem Sprühtrockner. *Chemie Ingenieur Technik*, Jahrg. 79, 2067-

2073 (2007), WILEY-VCH Verlag, Weinheim; ISSN 0009-286 X

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5. **Lain, S. and Sommerfeld, M.**

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1. **Göz, M.F., Sommerfeld, M. and Lain, S.**

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2. **Platzer, E. and Sommerfeld, M.**

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3. **Schaub, F., Sommerfeld, M. and Burgold, M.**

Bubble oscillation and motion in grid generated turbulence. Proceedings of the ASME Joint U.S.-European Fluids Engineering Summer Meeting, Miami, Florida, Paper No. FEDSM2006-98234 (2006)

4. **Konan, A., Lain, S., Simonin, O. and Sommerfeld, M.**

Comparison between Euler-Euler and Euler-Lagrange computations of gas-solid turbulent flow in a horizontal channel with different wall roughness. Proceedings of the ASME Joint U.S.-European Fluids Engineering Summer Meeting, Miami, Florida, Paper No. FEDSM2006-98263 (2006)

5. **Lain, S. and Sommerfeld, M.**

Numerical simulation of the transient three-dimensional gas-liquid flow in a cylindrical bubble column. Proceedings of the ASME Joint U.S.-European Fluids Engineering Summer Meeting, Miami, Florida, Paper No. FEDSM2006-98392 (2006)

6. **Hölzer, A. and Sommerfeld, M.**

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7. **Schaub, F. and Pluschke, W.**

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1. **Blei, S. und Sommerfeld, M.**

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2. **Ho, C.A. und Sommerfeld, M.**

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3. **Mehlheim, J.A., Horender, S. and Sommerfeld, M.**

Modeling of the vortex-structure in a particle-laden mixing-layer. Proceedings of the ASME Fluids Engineering Summer Conference, Houston, Texas, Paper No. FEDSM2005-77040 (2005)

4. **Lipowsky, J. and Sommerfeld, M.**

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5. **Verdurmen, R.E.M., Verschuren, M., Gunging, M., Straatmans, H., Blei, S. and Sommerfeld, M.**

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1. **Sommerfeld, M. and Decker, S.**

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2. **Verdurmen, R.E.M.; Menn, P.; Ritzert, J.; Blei, S.; Nhumai, G.C.S.; Sonne-Sorensen, T.; Gunging, M.; Straatmans, J.; Verschueren, M.; Sibeijn, M.; Dchulte, G.; Fritsching, U.; Bauckhage, K.; Tropea, C.; Sommerfeld, M.; Watkins, A.P.; Yule, A.J. & Schonefeld, H.**

Simulation of agglomeration in spray drying installations: The EDECAD project. Drying Technology, Vol. 22, 1403-1461 (2004)

3. **Lain, S. and Sommerfeld, M.**

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4. **Sommerfeld, M. and J. Kussin, J.**

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5. **Lain, S., Sommerfeld, M. and Kussin, J.**

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1. **Böttner, C.-U. and Sommerfeld, M.**

Messung und numerische Berechnung der Partikelbewegung im Elektroabscheider. Chemie Ingenieur Technik, Jahrg. 75, 188-194 (2003)

2. **Bröder, D. and Sommerfeld, M.**

Combined PIV/PTV-measurements for the analysis of bubble interactions and coalescence in a turbulent flow. The Canadian Journal of Chemical Engineering, Vol. 81, 756-763 (2003)

3. **Ho, C. A. and Sommerfeld, M.**

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7. **Sommerfeld, M., Bourloutski, E. and Bröder, D.**

Euler/Lagrange calculations of bubbly flows with consideration of bubble coalescence. The Canadian Journal of Chemical Engineering, Vol. 81, 508-518 (2003)

8. **Sommerfeld, M. and Bröder, D. (keynote lecture)**

Imaging and pulse light velocimetry applied to bubbly flows. 4th ASME/JSME Joint Fluids Engineering Conference, Honolulu, Hawaii, Paper No. FEDSM2003-45794 (2003)

9. **Sommerfeld, M. and Ho, C.A.**

Numerical calculation of particle transport in turbulent wall bounded flows. Powder Technology, Vol. 131, 1-6 (2003)

10. **Sommerfeld, M. and Kussin, J.**

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1. **Böttner, C.-U. and Sommerfeld, M.**

Numerical calculation of electrostatic powder painting using the Euler/Lagrange approach. Powder Technology, Vol. 125, 206-216 (2002)

2. **Bourloutski, E. and Sommerfeld, M.**

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