

## Publication List (02/2008)

### Book and book contribution

- [1] H. Briesen. *Adaptive Composition Representation for the Simulation and Optimization of Complex Multicomponent Mixture Processes*. VDI-Fortschritt-Bericht 740, Reihe 3. VDI-Verlag, Düsseldorf, Germany, Dissertation, 2002.
- [2] U. Plöcker, J. Janowsky, H. Briesen and W. Marquardt. *Winnacker-Küchler: Chemische Technik. Prozesse und Produkte. Band 2: Neue Technologien*, Kapitel: Prozessanalyse und -synthese: Modellierung, Simulation und Optimierung, 161 – 326. Wiley-VCH, Weinheim, 5. Edition, 2003.

### Journal articles

- [3] H. Briesen, A. Fuhrmann and S.E. Pratsinis. The effect of precursor in flame synthesis of SiO<sub>2</sub>. *Chem. Eng. Sci.*, 53(24):4105–4112, 1998.
- [4] S. Tsantilis, H. Briesen and S.E. Pratsinis. Sintering time for silica particle growth. *Aerosol Sci. Technol.*, 34:237–246, 2001.
- [5] H. Briesen and W. Marquardt. An adaptive multigrid method for the steady-state simulation of petroleum mixture separation processes. *Ind. Eng. Chem. Res.*, 42:2334 – 2348, 2003.
- [6] H. Briesen and W. Marquardt. A new approach to refinery process simulation with adaptive composition representation. *AIChE J.*, 50(3):633–645, 2004.
- [7] H. Briesen and W. Marquardt. Adaptive multigrid solution strategy for the dynamic simulation of petroleum mixture processes. *Comput. Chem. Eng.*, 29(1):139–148, 2004.
- [8] H. Briesen, R. Grosch, V. Kulikov, L. v. Wedel, A. Yang and W. Marquardt. Gekoppelte Fließbildsimulation von Partikelprozessen durch Integration verschiedener Simulationswerkzeuge. *Chem. Ing. Tech.*, 76(6):714–718, 2004.
- [9] R. Grosch, H. Briesen and W. Marquardt. Unterstützung der Modellierung und Analyse von kontinuierlichen Kristallisationsprozessen mit Fortsetzungswerkzeugen. *Chem. Ing. Tech.*, 76(12):1773–1777, 2004.
- [10] V. Kulikov, H. Briesen, R. Grosch, A. Yang, L. v. Wedel and W. Marquardt. Modular dynamic simulation of integrated process flowsheets by means of tool integration. *Chem. Eng. Sci.*, 60(7):2069–2083, 2005.
- [11] V. Kulikov, H. Briesen and W. Marquardt. Scale integration for the coupled simulation of crystallization and fluid dynamics. *Chem. Eng. Res. Des.*, 83(A6):706–717, 2005.
- [12] H. Briesen. Simulation of crystal size and shape by means of a reduced two-dimensional population balance model. *Chem. Eng. Sci.*, 61(1):104–112, 2006.
- [13] V. Kulikov, H. Briesen and W. Marquardt. A framework for the simulation of mass crystallization considering the effect of fluid dynamics. *Chem. Eng. Process.*, 45:886–899, 2006.
- [14] H. Briesen. Hierarchical characterization of agglomerated crystal structures for Monte-Carlo simulations. *AIChE J.*, 52(7):2436–2446, 2006.

- [15] R. Grosch, H. Briesen and W. Marquardt. Generalization and numerical investigation of QMOM for crystallization processes. *AIChE J.*, 53(1):207–227, 2007.
- [16] H. Briesen. Model-based analysis of the effect of particle and impact geometry on attrition of brittle material. *Powder Technol.*, 178:87–98, 2007.
- [17] N. Kail, H. Briesen and W. Marquardt. Advanced geometrical modelling of focused beam reflectance measurements (FBRM). *Part. Part. Sys. Char.*, 24:184–192, 2007.
- [18] H. Briesen. Aggregate structure evolution for size-dependent aggregation by means of Monte-Carlo simulations. *KONA*, 25:180–189, 2007.
- [19] N. Kail, H. Briesen and W. Marquardt. Analysis of FBRM measurements by means of a 3D optical model. *Powder Technol.*, 2007 (in press, available online).

#### Submitted journal articles

- [20] H. Briesen. Modeling shape dependent attrition for suspension crystallization. *Chem. Eng. Sci.*, 2007 (submitted).

#### Reviewed conference contributions with presentation

- [21] H. Briesen, A. Fuhrmann and S.E. Pratsinis. Synthesis of SiO<sub>2</sub> particles from organometallic precursors. In *Proc. 3rd World Congress on Particle Technology*, Brighton, GB, 1998.
- [22] H. Briesen, A. Fuhrmann and S.E. Pratsinis. Electrically assisted aerosol reactors using ring electrodes. In *Materials Research Society Symposium – Nanostructured Powders and their Industrial Applications*, 1–6, San Francisco, USA, 1998.
- [23] H. Briesen and W. Marquardt. Adaptive model reduction and simulation of thermal cracking of multicomponent hydrocarbon mixtures. In *Proc. PSE 2000*, Keystone, USA, erschienen in *Comput. Chem. Eng.*, 24:1287–1292, 2000.
- [24] R. Grosch, M. Mönnigmann, H. Briesen and W. Marquardt. Optimal design of a continuous crystallizer with guaranteed parametric robust stability. In J. Grievink and J. v. Schijndel, Ed., *ESCAPE-12*, 205–210, The Hague, The Netherlands, 2002.
- [25] H. Briesen and W. Marquardt. Adaptive multigrid solution strategy for the dynamic simulation of petroleum mixture processes: A case study. In B. Chen and A.W. Westerberg, Ed., *Process Systems Engineering 2003*, 406–409, Kunming, China, 2003.
- [26] H. Briesen and W. Marquardt. A real-time optimization strategy for petroleum processes with successive adaptive model refinement. In I.E. Grossmann and C.M. McDonald, Ed., *FOCAPO 2003*, 431–434, Coral Springs, USA, 2003.
- [27] H. Briesen. Simulation of habit transients by means of a reduced two-dimensional population balance model. In *Proc. 2nd International Conference on Population Balance Modelling*, Valencia, Spain, 2004.
- [28] V. Kulikov, H. Briesen and W. Marquardt. Scale integration for the coupled simulation of crystallization and fluid dynamics. In *Proc. World Congress of Chemical Engineering*, Glasgow, GB, 2005 (journal publications after peer review; cf. [11]).

- [29] H. Briesen. Improving the predictive capabilities of the attrition model according to Gahn and Mersmann. In *Proc. 16th International Symposium on Industrial Crystallization*, Dresden, 2005.
- [30] R. Grosch, H. Briesen and W. Marquardt. Simultaneous tuning of multiple control loops in an unstable crystallizer employing a robust design approach. In *Proc. 16th International Symposium on Industrial Crystallization*, Dresden, 2005.
- [31] N. Kail, H. Briesen and W. Marquardt. Quantitative measurement of attrition based secondary nucleation using a Lasentec D600 FBRM device. In *Proc. 16th International Symposium on Industrial Crystallization*, Dresden, 2005.
- [32] H. Briesen. Stochastic simulation of agglomeration for crystallization processes. In *Proc. 5th World Congress on Particle Technology*, Orlando, USA, 2006.
- [33] V. Kulikov, H. Briesen and W. Marquardt. Adaptive compartment selection for the coupled simulation of population balance and fluid dynamics. In *Proc. 17th Int. Congress on Chemical and Process Engineering (CHISA)*, Prague, Czech Republic, 2006.
- [34] N. Kail, J. Schöll, B. Smith, H. Briesen and W. Marquardt. Monitoring particle agglomeration using FBRM/PVM technology. In *Proc. PARTEC 2007*, Nürnberg, 2007.
- [35] H. Briesen. Modeling shape dependent crystal attrition behavior by means of a two-dimensional population balance model. In *Proc. 3rd International Conference on Population Balance Modelling*, Quebec, Canada, 2007.

#### Non-reviewed contributions

- [36] H. Briesen and W. Marquardt. An adaptive multiscale Galerkin method for the simulation of continuous mixture separation processes. In *Proc. of AIChE Annual meeting*, Dallas, USA, 1999.
- [37] H. Briesen, N. Kail and W. Marquardt. Lückenlose Qualitätskontrolle bei der Medikamentenherstellung - Wie Messtechnik und Simulation den Alltag sicherer machen. *RWTH Themen: Computational Engineering Science - Ein neues Ingenieurprofil*, 2:32–35, 2007.

#### Invited presentations

- [38] H. Briesen, V. Kulikov and W. Marquardt. A framework for simulation of mass crystallization considering the effect of hydrodynamics. *2nd International Max Planck Symposium Particulate Processes*, Magdeburg, 2004.
- [39] H. Briesen, V. Kulikov and W. Marquardt. The role of hydrodynamics in crystallization. *13th Larson Workshop*, Association of Crystallization Technology (ACT), Chicago, USA, 2004.
- [40] H. Briesen and W. Marquardt. Continuous composition representation and multiscale solution method for refinery simulation and optimization. In *Workshop on Continuous Diversity, Complex Mixtures and Applications*, 5.-6.5. 2005, Max Planck Institute for Mathematics in the Sciences, Leipzig, 2005.
- [41] H. Briesen, N. Kail and W. Marquardt. Using focused beam reflectance measurements (FBRM) for crystallization analysis. *SINC-PRO Workshop*, 28.29.4.2005, Delft, The Netherlands, 2005.

## Presentations without written contribution

- [42] H. Briesen and S.E. Pratsinis. Modeling silica particle formation and growth from various precursors in premixed flame aerosol reactors. *AIChE Annual Meeting*, Miami, USA, Posterpräsentation, 1998.
- [43] H. Briesen, R. v. Watzdorf and W. Marquardt. Reduzierte Modellierung von komplexen Vielstoffgemischen mit Hilfe von Wavelet-Galerkin Verfahren. *DECHEMA-Fachausschuss Prozesssimulation und Prozesssynthese*, Frankfurt, 1999.
- [44] H. Briesen and W. Marquardt. The solution of refinery process problems by means of a multigrid method based on an adaptive Wavelet-Galerkin discretization. *European Multigrid Conference*, Hohenwart, 2002.
- [45] V. Kulikov, R. Grosch, L. v. Wedel, A. Yang, H. Briesen and W. Marquardt. Integration of various software tools for simulation of particulate processes. *GVC-DECHEMA-Fachausschuss Prozess- und Anlagentechnik*, Würzburg, 2002.
- [46] H. Briesen, R. Grosch, V. Kulikov and W. Marquardt. Stability issues and modular simulation for crystallization processes. *Seminar TU Delft*, The Netherlands, 2003.
- [47] H. Briesen, V. Kulikov, R. Grosch and W. Marquardt. Simulation von Kristallisationsprozessen mit Hilfe der Integration von spezialisierten Softwarewerkzeugen. *GVC-Fachausschuss Kristallisation*, Weimar, 2003.
- [48] H. Briesen, R. Grosch, V. Kulikov, A. Yang, W. Marquardt and L. v. Wedel. Modelling with best-in-class components. *PSE User meeting*, London, GB, 2003.
- [49] R. Grosch, V. Kulikov, H. Briesen and W. Marquardt. Gekoppelte Simulation und Analyse von Kristallisationsprozessen. *PREDICI Benutzertreffen*, Vaalsbroek, The Netherlands, 2003.
- [50] V. Kulikov, L. v. Wedel, A. Yang, R. Grosch, H. Briesen and W. Marquardt. Software integration for the simulation of particulate processes. *ACHEMA*, Frankfurt, 2003.
- [51] V. Kulikov, R. Grosch, H. Briesen, A. Yang, W. Marquardt and L. v. Wedel. Simulation von Kristallisationsprozessen mit Hilfe der Integration von spezialisierten Softwarewerkzeugen. *DECHEMA/GVC Jahrestagungen*, Mannheim, 2003.
- [52] R. Grosch, H. Briesen and W. Marquardt. Unterstützung der Modellierung und Analyse von kontinuierlichen Kristallisationsprozessen mit Fortsetzungswerkzeugen. *GVC Fachausschuss Kristallisation*, Jena, 2004.
- [53] V. Kulikov, H. Briesen and W. Marquardt. Coupled simulation for particulate processes. *Workshop Modellierung partikeltechnischer Prozesse*, Fraunhofer Institut UMSICHT, Oberhausen, 2004.
- [54] R. Grosch, V. Kulikov, H. Briesen and W. Marquardt. Gekoppelte Simulation und numerische Pfadverfolgung für Kristallisationsprozesse. *Parsival Benutzertreffen*, Rastede, 2004.
- [55] H. Briesen. Modelling of focused beam reflectance measurements (FBRM) and complex particle characterization for the modelling of crystallization processes. Seminar Hong Kong University of Science and Technology (HKUST), China, 2005.
- [56] H. Briesen. Non-linear dynamics and modular simulation of crystallization processes. Seminar Hong Kong University of Science and Technology (HKUST), China, 2005.

- [57] H. Briesen, K. Brix, W. Dahmen and W. Marquardt. A multi-scale method for multicomponent mixture separation processes. *GAMM Annual meeting, Luxembourg*, 2005.
- [58] N. Kail, H. Briesen and W. Marquardt. Physikalische Deutung und rigorose Modellierung von FBRM-Messungen. *Fachauschusstagung GVC Kristallisation*, Boppard, 2005.
- [59] H. Briesen. Einfluss der Kristallgeometrie bei der Vorhersage sekundärer Keimbildung durch Abrieb. In *Fachauschusstagung GVC Kristallisation*, Basel, Schweiz, 2006.
- [60] H. Briesen. Complex particle characterization for the modeling of industrial crystallization processes. *Seminar at AMOLF, Amsterdam, The Netherlands*, 2006.
- [61] H. Briesen and W. Marquardt. Prozessmodellierung im Center for Computational Engineering Science (CCES). *GHI Sommerkolloquium Generative Fertigungsverfahren und Prozessmodellierung*, RWTH Aachen, 2006.
- [62] H. Briesen. Predictive modeling of crystallization processes - a utopia? *Seminar Max-Planck-Institut for Dynamics of Complex Technical Systems*, Magdeburg, 2006.
- [63] H. Briesen. Beschreibung der Agglomeratstrukturbildung mit Hilfe von Monte-Carlo-Simulationen. *ProcessNet Fachauschuss Kristallisation*, Nürnberg, 2007.
- [64] H. Briesen. Prädiktive Modellierung von Partikelprozessen mit komplexer Partikelcharakterisierung. *Verfahrenstechnisches Kolloquium*, Technische Universität Hamburg-Harburg, 2007.
- [65] N. Kail, H. Briesen and W. Marquardt. Modellierung und Analyse von FBRM-Messungen mit Hilfe eines drei-dimensionalen optischen Modells. *ProcessNet-Fachauschuss Partikelmesstechnik*, Dresden, 2007.
- [66] H. Briesen. Wege zur prädiktive Modellierung von Kristallisationsprozessen. *Seminar Lehrstuhl für Thermodynamik*, Universität Dortmund, 2007.
- [67] H. Briesen. Simulation des Abriebsverhaltens komplex geformter Kristalle. *ProcessNet Jahrestagung*, Aachen, 2007 (poster presentation).
- [68] N. Kail, H. Briesen and W. Marquardt. Integration eines Messtechnikmodells zur Parameterschätzung in dispersen Systemen am Beispiel der FBRM-Technologie. *ProcessNet Jahrestagung*, Aachen, 2007.
- [69] H. Briesen. Stochastische Simulation von technischen Kristallisationsprozessen. *ProcessNet: Symposium Bildung und Innovation*, Weimar, 2007.
- [70] H. Briesen. Mehrskalige Modellierung eigenschaftsverteilter Systeme in Partikelsuspensionen. *Seminar Systemverfahrenstechnik*, Technische Universität München, 2007.
- [71] H. Briesen. Modellierung eigenschaftsverteilter Systeme. *Seminar Lehrstuhl für Bioverfahrenstechnik*, Friedrich-Alexander-Universität Erlangen-Nürnberg, 2007.
- [72] H. Briesen. Prädiktive Modellierung von Partikelprozessen mit komplexer Partikelcharakterisierung. *Seminars Feststoffverfahrenstechnik*, Ruhr-Universität-Bochum, 2008.

- [73] V. Becker, M. Behr, H. Briesen and E. Schlauch. Mechanistische Modellierung des Restrukturierungsverhaltens kolloidaler Aggregate. *SPP 1273 Kolloidverfahrenstechnik*, Karlsruhe, 2008.
- [74] H. Briesen. Interaction of particle and fluid dynamics. *Habilitation Lecture*, RWTH Aachen, 2008.
- [75] H. Briesen. The quest for predictive crystallization process models - a multiscale perspective. *Indo-German Workshop on Advances in Reaction and Separation processes*, Chennai, India, 2008 (accepted).
- [76] H. Briesen. Formabhängige Abriebsmodellierung - Vom Einzelpartikel zur Prozesssimulation. In *ProcessNet Fachausschuss Kristallisation*, Halle, 2008 (accepted, poster presentation).