

# **Publikationsbericht 2007**

**Institut für Analysis und Numerik**



**Otto-von-Guericke-Universität Magdeburg**

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Prof. Dr. Lutz Tobiska

Prof. Dr. Guofang Wang

Prof. Dr. Gerald Warnecke

## 3. Veröffentlichungen

### *Originalartikel in begutachteten internationalen Zeitschriften*

#### **Barrett, John W. ; Deckelnick, Klaus**

Existence, uniqueness and approximation of a doubly-degenerate nonlinear parabolic system modelling bacterial evolution

In: Mathematical models & methods in applied sciences. - Singapore [u.a.]: World Scientific, Bd. 17.2007, 7, S. 1095-1127; [Link unter URL](#)

[Imp.fact.: 1.805]

#### **Berchio, Elvise; Grunau, Hans-Christoph**

Local regularity of weak solutions of semilinear parabolic systems with critical growth

In: Journal of evolution equations. - Basel [u.a.]: Birkhäuser, Bd. 7.2007, 1, S. 177-196; [Link unter URL](#)

[Imp.fact.: 0.679]

#### **Chen, Li; Hsiao, Ling; Warnecke, Gerald**

Study on a cross diffusion parabolic system

In: Acta mathematicae applicatae sinica. - Heidelberg [u.a.]: Springer, Bd. 23.2007, 1, S. 9-28; [Abstract unter URL](#)

#### **Chen, Q. ; Jost, Jürgen; Wang, Guofang**

Liouville theorems for dirac-harmonic maps

In: Journal of mathematical physics. - Melville, NY: American Institute of Physics, Bd. 48.2007, 11, S. 113517-

1-11351713; [Link unter URL](#)

[Imp.fact.: 1.018]

**Dall' Acqua, Anna**

On the lifetime of a conditioned brownian motion in the ball

In: Journal of mathematical analysis and applications. - Amsterdam [u.a.]: Elsevier, Bd. 335.2007, 1, S. 389-405;

[Link unter URL](#)

[Imp.fact.: 0.758]

**Deckelnick, Klaus; Grunau, Hans-Christoph**

Boundary value problems for the one-dimensional Willmore equation

In: Calculus of variations and partial differential equations. - Berlin: Springer, Bd. 30.2007, 3, S. 293-314;

[Link unter URL](#)

[Imp.fact.: 0.992]

**Deckelnick, Klaus; Hinze, Michael**

Convergence of a finite element approximation to a state-constrained elliptic control problem

In: Society for Industrial and Applied Mathematics: SIAM journal on numerical analysis. - Philadelphia, Pa. : SIAM,

Bd. 45.2007, 5, S. 1937-1953; [Link unter URL](#)

[Imp.fact.: 1.335]

**Ferrero, Alberto; Grunau, Hans-Christoph**

The Dirichlet problem for supercritical biharmonic equations with power-type nonlinearity

In: Journal of differential equations. - Orlando, Fla. : Elsevier, Bd. 234.2007, 2, S. 582-606; [Link unter URL](#)

[Imp.fact.: 1.166]

**Franca, Leopoldo P. ; John, Volker; Matthies, Gunnar; Tobiska, Lutz**

An inf-sup stable and residual-free bubble element for the Oseen equations

In: Society for Industrial and Applied Mathematics: SIAM journal on numerical analysis. - Philadelphia, Pa. : SIAM,

Bd. 45.2007, 6, S. 2392-2407; [Link unter URL](#)

[Imp.fact.: 1.335]

**Ganesan, Sashikumaar; Matthies, Gunar; Tobiska, Lutz**

On spurious velocities in incompressible flow problems with interfaces

In: Computer methods in applied mechanics and engineering. - Amsterdam [u.a.]: Elsevier Science, Bd. 196.2007, 7, S. 1193-1202; [Abstract unter URL](#)

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**Ganesan, Sashikumaar; Tobiska, Lutz**

An accurate finite element scheme with moving meshes for computing 3D-axisymmetric interface flows

In: International journal for numerical methods in fluids. - Chichester: Wiley, insges. 20 S.; [Abstract unter URL](#), 2007

**Gazzola, Filippo; Grunau, Hans-Christoph**

Global solutions for superlinear parabolic equations involving the biharmonic operator for initial data with optimal slow decay

In: Calculus of variations and partial differential equations. - Berlin: Springer, Bd. 30.2007, 3, S. 389-415;

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**Gollwitzer, Christian; Matthies, Gunnar; Richter, Reinhard; Rehberg, Ingo; Tobiska, Lutz**

The surface topography of a magnetic fluid - a quantitative comparison between experiment and numerical simulation

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[Imp.fact.: 2.061]

**Grunau, Hans-Christoph; Sweers, Guido**

Regions of positivity for polyharmonic green functions in arbitrary domains

In: American Mathematical Society: Proceedings of the American Mathematical Society. - Providence, RI: Soc., Bd. 135.2007, 11, S. 3537-3546; [Link unter URL](#)  
[Imp.fact.: 0.513]

**Guan, Pengfrei; Lin, Chang-Shou; Wang, Guofang**

Local gradient estimates for quotient equations in conformal geometry

In: International journal of mathematics. - Singapore [u.a.]: World Scientific, Bd. 18.2007, 4, S. 349-361;

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[Imp.fact.: 0.531]

**Heuveline, Vincent; Schieweck, Friedhelm**

H 1-interpolation on quadrilateral and hexahedral meshes with hanging nodes

In: Computing. - Wien [u.a.]: Springer, Bd. 80.2007, 3, S. 203-220; [Link unter URL](#)

[Imp.fact.: 0.881]

**Heuveline, Vincent; Schieweck, Friedhelm**

On the inf-sup condition for higher order mixed FEM on meshes with hanging nodes

In: Mathematical modelling and numerical analysis. - Les Ulis: EDP Sciences, Bd. 41.2007, 1, S. 1-20;

[Link unter URL](#)

**Jost, Jürgen; Wang, Guofang; Zhou, Chunqin**

Super-Liouville equations on closed Riemann surfaces

In: Communications in partial differential equations. - Philadelphia, PA: Taylor & Francis, Bd. 32.2007, 7, S. 1103-1128; [Link unter URL](#)

[Imp.fact.: 1.094]

**Kumar, Jitendra; Peglow, Mirko; Warnecke, Gerald; Heinrich, Stefan**

An efficient numerical technique for solving population balance equation involving aggregation, breakage, growth and nucleation

In: Powder technology. - Amsterdam [u.a.]: Elsevier, Bd. 179.2007, S. 205-228; [Link unter URL](#)

[Imp.fact.: 1.232]

**Lübke, Robert; Seidel-Morgenstern, Andreas; Tobiska, Lutz**

Numerical method for accelerated calculation of cyclic steady state of ModiConSMB-processes

In: Computers & chemical engineering. - Amsterdam [u.a.]: Elsevier, Bd. 31.2007, 4, S. 258-267; [Link unter URL](#)

[Imp.fact.: 1.501]

**Lukáčová-Medvidová, M. ; Warnecke, Gerald; Zahaykah, Y.**

On the stability of evolution Galerkin schemes applied to a two-dimensional wave equation system

In: Society for Industrial and Applied Mathematics: SIAM journal on numerical analysis. - Philadelphia, Pa. : SIAM, Bd. 44.2007, 4, S. 1556-1583; [Link unter URL](#)

[Imp.fact.: 1.335]

**Matthies, Gunar; Schieweck, Friedhelm**

On the reference mapping for quadrilateral and hexahedral finite elements on multilevel adaptive grids

In: Computing. - Wien [u.a.]: Springer, Bd. 80.2007, 3, S. 95-119; [Link unter URL](#)

[Imp.fact.: 0.881]

**Matthies, Gunar; Skrzypacz, Piotr; Tobiska, Lutz**

A unified convergence analysis for local projection stabilisations applied to the Oseen problem

In: Mathematical modelling and numerical analysis. - Les Ulis: EDP Sciences, Bd. 41.2007, 4, S. 713-742;

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**Matthies, Gunar; Tobiska, Lutz**

Mass conservation of finite element methods for coupled flow-transport problems

In: International journal of computing science and mathematics. - Genève: Inderscience Enterprise Ltd., Bd. 1.2007, 2/3/4, S. 293-307; [Link unter URL](#)

**Peglow, Mirko; Kumar, Jitendra; Hampel, Robert; Tsotsas, Evangelos; Heinrich, Stefan**

Towards a complete population balance model for fluidized-bed spray agglomeration

In: Drying technology. - New York, NY [u.a.]: Dekker, Bd. 25.2007, 7/8, S. 1321-1329; [Link unter URL](#)

[Imp.fact.: 1.100]

**Qamar, Shamsul; Ashfaq, Azhar; Warnecke, Gerald; Angelov, I. ; Elsner, M. P. ; Seidel-Morgenstern, Andreas**

Adaptive high-resolution schemes for multidimensional population balances in crystallization processes

In: Computers & chemical engineering. - Amsterdam [u.a.]: Elsevier, Bd. 31.2007, 10, S. 1296-1311; [Link unter URL](#)

[Imp.fact.: 1.404]

**Qamar, Shamsul; Warnecke, Gerald**

Numerical solution of population balance equations for nucleation, growth and aggregation processes

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**Qurrat-UI-Ain; Qamar, Shamsul; Warnecke, Gerald**

A high-resolution space-time conservative method for non-linear hyperbolic conservation laws

In: International journal of computational methods. - Singapore [u.a.]: World Scientific Publishing, Bd. 4.2007, 2, S. 223-247; [Link unter URL](#)

**Rüdiger, S. ; Shuai, J. W. ; Huisinga, W. ; Nagaiah, Chamakuri; Warnecke, Gerald; Parker, I. ; Falcke, M.**

Hybrid stochastic and deterministic simulations of calcium blips

In: Biophysical journal. - Bethesda, Md. : Biophysical Soc., Bd. 93.2007, 6, S. 1847-1857; [Link unter URL](#)

[Imp.fact.: 4.757]

**Stynes, Martin; Tobiska, Lutz**

Using rectangular Qpelements in the SDFEM for a convection-diffusion problem with a boundary layer

In: Applied numerical mathematics. - Amsterdam [u.a.]: North-Holland Publ. Co., insges. 21 S.; [Abstract unter URL](#)

[Imp.fact.: 0.835]

**van den Berg, M. ; Dall' Acqua, Anna; Sweers, G. H.**

Estimates for the expected lifetime of conditioned brownian motion

In: Royal Society <Edinburgh>: Proceedings // Royal Society of Edinburgh. - Edinburgh: Soc., Bd. 137.2007, 5, S. 1091-1099; [Link unter URL](#)

[Imp.fact.: 0.758]

#### ***Originalartikel in begutachteten nationalen Zeitschriften***

**Dittmar, Bodo; Hantke, Maren**

The Robin function and its eigenvalues

In: Georgian mathematical journal. - Lemgo: Heldermann, Bd. 14.2007, 3, S. 403-417

**Lange, Adian; Richter, Reinhard; Tobiska, Lutz**

Linear and nonlinear approach to the Rosensweig instability

In: Gesellschaft für Angewandte Mathematik und Mechanik: GAMM-Mitteilungen. - Weinheim: Wiley-VCH, Bd. 30.2007, 1, S. 171-184

#### ***Buchbeiträge***

**Kumar, Jitendra; Peglow, Mirko; Warnecke, Gerald; Heinrich, Stefan; Tsotsas, Evangelos; Mörl, Lothar;**

**Hounslow, Mike; Reynolds, Gavin**

Numerical methods on population balances

In: Modern drying technology; Vol. 1: Computational tools at different scales. - Weinheim: WILEY-VCH, S. 209-260, 2007

**Artikel in Kongressbänden**

**Ganesan, Sashikumaar; Tobiska, Lutz**

Non-isothermal spreading of a liquid droplet with dynamic contact angles on a horizontal surface

In: International Conference on Multiphase Flow <6, 2007, Leipzig>: Proceedings of the ICMF 2007, 6th International Conference on Multiphase Flow. - Leipzig, insges. 7 S.

[International Conference on Multiphase Flow; 6 (Leipzig): 2007.07.09-07.13]

**Ganesan, Sashikumaar; Tobiska, Lutz**

On the influence of finite element discretisations on spurious velocities in two-phase flows

In: International Conference on Multiphase Flow <6, 2007, Leipzig>: Proceedings of the ICMF 2007, 6th International Conference on Multiphase Flow. - Leipzig, insges. 8 S.

[International Conference on Multiphase Flow; 6 (Leipzig): 2007.07.09-07.13]

**Hampel, Robert; Peglow, Mirko; Kumar, Jitendra; Tsatsas, Evangelos; Heinrich, Stefan**

Study of agglomeration kinetics in fluidized beds referring to the moisture content of particles

In: International Conference on Population Balance Modelling <3, 2007, Québec City>: Proceedings // 3rd International Conference on Population Balance Modelling. - Univ. Laval, insges. 8 S.

[International Conference on Population Balance Modelling; 3 (Québec City): 2007.09.19-51]

**Dissertationen**

**Nadupuri, Suresh Kumar**

Numerical study of drying in porous media. - Magdeburg, Univ., Fak. für Mathematik, Diss., 2007; [Link unter URL](#); X, 96 S.: graph. Darst.; 21 cm

**Nagaiah, Chamakuri**

Adaptive numerical simulation of reaction - diffusion systems. - Magdeburg, Univ., Fak. für Mathematik, Diss., 2007; [Link unter URL](#); XII, 164 S.: Ill., graph. Darst.; 21 cm