

**Prof. Dr.-Ing. Rainer Helmig**

**Doctorates: Co-supervisor / Member of Examination Committee**

1. Reinhard Hinkelmann (Uni Hannover): Parallelisierung eines Euler-Lagrange Verfahrens für Strömungs- und Stofftransportprozesse in Oberflächengewässern (31.1.1997)
2. Martin Emmert (Uni Stuttgart): Numerische Modellierung nichtisothermer Gas-Wasser Systeme in porösen Medien (8.04.1997)
3. Arne Färber (Uni Stuttgart): Wärmetransport in der ungesättigten Bodenzone: Entwicklung einer thermischen In-Situ-Sanierungstechnologie (22.07.1997)
4. Olaf Cirpka (Uni Stuttgart): Numerische Methoden zur Simulation des reaktiven Mehrkomponententransports im Grundwasser (22.07.1997)
5. Daniel Flensberg (Uni Bochum): Numerische Behandlung der Zweiphasenströmung im konvektionsdominanten und stark nichtlinearen Fall (1998)
6. Jacek Jankowski (Uni Hannover): A non-hydrostatic model for free surface flows (1998)
7. Stefan Weihrauch (TU Braunschweig): Optimierung der hydraulischen Sanierung von Grundwasserkontaminationen mit chlorierten Kohlenwasserstoffen durch temporär erhöhte hydraulische Gradienten (1998)
8. Gabriel Ndikumana (TU Braunschweig): Numerische Modellierung der Wirkung von longitudinalen Totzonen auf die Stoffausbreitung in renaturierten Fließgewässern (1999)
9. Britta Rosen (Ruhr-Universität Bochum): Numerische Modellierung der Wechselwirkung zwischen gesättigt-ungesättigter Grundwasserströmung und Verformung im geklüfteten Gestein (1999)
10. Alexander Fuchs (Uni Stuttgart): Optimierte Delaunay-Triangulierungen zur Vernetzung getrimmter NURBS-Körper (1999)
11. Jörg Middendorf (TU Chemnitz): Zur Beschreibung des kapillaren Flüssigkeitstransportes in Papier (1999)
12. Holger Schüttrumpf (TU Braunschweig): Hydrodynamische Belastung der Binnenböschung von Seedeichen durch Wellenüberlauf (5.02.2001)
13. Janine Edelhoff-Dauben (TU Claustal-Zellerfeld): Sicherung von Gasaustritten an der Erdoberfläche in Abhängigkeit unterschiedlicher Deckgebirgsmächtigkeiten (30.01.2001)
14. Jan Wienke (TU Braunschweig): Druckschlagbelastung von Zylindern durch brechende Wellen -theoretische und großmaßstäbliche Untersuchungen (17.07.2001)
15. Dharumarajen Nayagum (Université Louis Pasteur de Strasbourg): Simulation Numérique de la Pollution du Sous-Sol par les Produits Pétroliers Dérivés: Application au Cas d'un Ecoulement Diphasique Monodimensionnel (2001)

16. Jens Hanel (TU Braunschweig): Modell zur Analyse von gekoppelten Transport- und Stoffabbauprozessen in Deponien (23.11.2001)
17. Martin Bernreuther (Uni Stuttgart): Geometrische Modellierung mit Simplizialkomplexen - Vom CAD-Modell zur numerischen Analyse (18.07.2002)
18. Alexandre Nekrassov (TU Freiberg): Development of a reservoir simulation tool with the local equilibrium approach to composite water-hydrocarbon systems for application to multiphase flow in petroleum reservoirs and in aquifers taking into account the hydrodynamic dispersion (12.07.2002)
19. Hocine Benremita (Uni Strasbourg): Approche Expérimentale et Simulation Numérique du Transfert de Solvants Chlorés en Aquifère Alluvial Contrôlé (9.09.2002)
20. Sven Crone (Uni Dortmund): Nicht-isotherme mehrphasige Mehrkomponentenströmungen mit Phasenwechsel in porösen Medien (2.09.2002)
21. Angela Winkler (Uni Stuttgart): Prozesse des Wärme- und Schadstofftransports bei der In-Situ-Sanierung mit festen Wärmequellen (15.10.2002)
22. Jochen Appt (Uni Stuttgart): Analysis of wind-induced basin-scale internal waves of stratified Upper Lake Constance by the combined use of measurements and a three-dimensional numerical model (23.07.2003)
23. Gerhard Haimerl (TU München): Groundwater recharge in wadi channels downstream of dams – efficiency and management strategies (02.02.2004)
24. Vincent Legendijk (RWTH Aachen): Stofftransportvorgänge in Festgesteinsaquiferen: Analyse von Tracerdurchbruchkurven zur Identifikation eines geeigneten Mehrkontinuum-Ansatzes (30.01.2004)
25. Jan Martin Nordbotten (Uni Bergen, Norwegen): Sequestration of carbon in saline aquifers – mathematical and numerical analysis (30.04.2004)
26. Martin Spiller (RWTH Aachen): Physical and numerical experiments of flow and transport in heterogeneous fractured media: single fracture flow at high Reynolds numbers, and reactive particle transport (Modélisation physique et numérique d'écoulements et transports en milieux hétérogènes fractures: Ecoulement à haut Reynolds et transport particulaire réactif) (25.10.2004)
27. Julia Weilbeer (Uni Hannover): Modellierung des Partikeltransports in Nachklärbecken als Mehrphasenströmung (12.11.2004)
28. Thomas Vogel (RWTH Aachen): Characterization and sensitivity analysis of tracer breakthrough curves with respect to multi-continuum modeling (Charakterisierung und Sensitivitätsanalyse von Tracerdurchbruchkurven im Hinblick auf die Mehrkontinuum-Modellierung (14.01.2005)
29. Ralf Wege (Uni Stuttgart): Untersuchungs- und Überwachungsmethoden zur Beurteilung des Natural-Attenuation-Potentials von gaswerkstypischen Schadensfällen (19.05.2005)

30. Arndt Marzilger (RWTH Aachen): Das Ausgangsverhalten von Steinkohlenbergwerken unmittelbar nach Stilllegung am Beispiel des Bergwerks Westfalen (15.06.2005)
31. Anke Jannie Landmann (Uni Delft): Fundamental mechanisms underlying high-density transport in porous media (28.06.2005)
32. Stefan Rief (Uni Kaiserslautern): Nonlinear flow in porous media – numerical solution of the Navier-Stokes system with two pressures and application to paper making (15.09.2005)
33. Klaas Heinrich (Uni Karlsruhe): Hydraulisch kontrollierte Wasser-Alkohol-Zirkulation zur gezielten in-situ CKW-Sanierung (19.07.2006)
34. Jostein Natvig (Uni Oslo): Fast-marching methods for porous media flow and numerical methods for conservation laws (10.10.2006)
35. Willem-Jan Plug (TU Delft): Measurements of capillary pressure and electric permittivity of gas-water systems in porous media at elevated pressures: Application to geological storage of CO<sub>2</sub> in aquifers and wetting behaviour in coal (16.10.2007)
36. Steffen Herrmann (Uni Stuttgart): Simulationsmodell zum Wasserabfluss von Fahrbahnoberflächen (25.10.2007)
37. Markus Brenk (Uni Stuttgart): Algorithmische Aspekte der Fluid-Struktur-Wechselwirkung auf kartesischen Gittern (17.12.2007)
38. Tobias Graf (Uni Stuttgart): Multiphase flow processes in deformable porous media under consideration of fluid phase transitions (12.06.2008)
39. Giorgio Amisora Onnis (ETH Zürich): Interpreting multiple environmental tracer data with a groundwater model in a perialpine catchment (19.09.2008)
40. Ayhan Acartürk (Uni Stuttgart): Simulation of charged hydrated porous materials (27.03.2009)
41. Randi Holm (Uni Bergen): Modelling of three-phase flow functions for applications in enhanced oil recovery (22.05.2009)
42. Benjamin Ahrenholz (TU Braunschweig): Massively parallel simulations of multiphase and multicomponent flows using lattice Boltzmann methods (17.08.2009)
43. Yvonne Lins (Uni Bochum): Hydro-mechanical properties of partially saturated sand (07.09.2009)
44. Sreejith Kuttanikkad (Uni Heidelberg): Pore-scale direct numerical simulation of flow and transport in porous media (15.10.2009)
45. Simona Bottero (Uni Utrecht): Advances in the theory of capillarity in porous media (09.11.2009)

46. Raphael di Chiara Roupert (Uni Strasbourg): Développement d'un code de calcul multiphasique multiconstituants (08.12.2009)
47. Milos Vasin (Uni Stuttgart): Influence of soil structure on the flow in the unsaturated zone (11.12.2009)
48. Vahid Joekar-Niasar (Uni Utrecht): The Immiscibles. Capillarity effects in porous media: pore-network modeling (29.03.2010)
49. Yufei Cao (Uni Stuttgart): Robust numerical algorithms based on corrected operator splitting for two-phase flow in porous media (08.06.2010)
50. Sonja Bente (TU Braunschweig): Interaction of degradation, deformation and transport processes in municipal solid waste landfills (27.10.2010)
51. Ebrahim Shahræeni (ETH Zürich): Thermo-evaporative fluxes from porous media from pore to continuum scale (29.11.2010)
52. Isabel Ostermann (TU Kaiserslautern): Modeling heat transport in deep geothermal systems by radial basis functions
53. Johannes Reichold (ETH Zürich): Cerebral blood flow modeling in realistic cortical microvascular networks (26.07.2011)
54. Hadi Hajibeygi (ETH Zürich): Iterative multiscale finite volume method for multiphase flow in porous media with complex physics (26.07.2011)
55. Anna Kuhlmann (Uni Stuttgart): Influence of non-Gaussian soil structure and root water uptake on flow in the unsaturated zone (14.11.2011)
56. Chaozhong Qin (Uni Utrecht): Modeling two-phase flow and transport in polymer electrolyte membrane fuel cell: Linking simulations in resolved porous microstructures with a macroscopic fuel cell model (04.06.2012)
57. Irina Komarova (Uni Stuttgart): Carbon-dioxide storage in the subsurface: a fully coupled analysis of transport phenomena and solid deformation (16.07.2012)
58. Anne Wolff (Uni Stuttgart): Numerical simulation of surface runoff on pavements with irregular topography by means of the shallow water equation (10.08.2012)
59. Kenneth Mark Walton (Uni Waterloo): On modeling three-phase flow in discretely fractured rock (26.02.2013)
60. Frederike Kissling (Uni Stuttgart): Analysis and numerics for nonclassical wave fronts in porous media (05.03.2013)
61. Mohammed Ghesmoune (Uni Lorraine): Advancement of the negative saturations method for multi-phase multi-components flow with gravity and diffusion (02.04.2013)
62. Lena Walter (2013) Uni Stuttgart: Uncertainty studies and risk assessment for CO<sub>2</sub> storage in geological formations (04.07.2013)

63. Felix Heimann (2013) Uni Heidelberg: An unfitted higher-order discontinuous Galerkin method for incompressible two-phase flow with moving contact lines (15.07.2013)
64. Philipp Leube (2013) Uni Stuttgart: Methods for physically-based model reduction in time: analysis, comparison of methods and application(24.10.2013)
65. Muhammad Imran (2013) Uni Utrecht: An experimental study of thermal and thermohaline convection in saturated porous media (25.10.2013)
66. Rainer Enzenhöfer (2013) Uni Stuttgart: Quantification and management of risks in water production and supply systems (17.12.2013)
67. Daniel Erdal (2014) Uni Hannover: Bias correction as a means to compensate for unresolved subsurface structure in modeling of flow in the unsaturated zone (14.02.2014)
68. Bruno Arbter (2014) Uni Stuttgart: Numerische Bestimmung der akustischen Eigenschaften offenporiger Fahrbahnbeläge auf der Basis ihrer rekonstruierten Geometrie (08.04.2014)
69. Barbara Mayer (2014) Uni Stuttgart: Investigation of pressure loss and heat transfer in a regular metallic porous structure (18.06.2014)
70. Nicolas Schwenck (2015) Uni Stuttgart: An XFEM approach for the simulation of fractured porous-media systems (10.02.2015)
71. Jan Philip Busch (2015) Uni Potsdam: Investigations on mobility of carbon colloid supported nanoscale zero-valent iron (nZVI) for groundwater remediation (28.04.2015)
72. Leopold Stadler (2015) TU Berlin: Entwicklung von Modellkonzepten für die Simulation von Zweiphasenströmungen in makroporösen Böden (04.05.2015)
73. Tobias Köppl (2015) TU München: Multi-scale modeling of flow and transport processes in arterial networks and tissue (08.06.2015)
74. Erfan Haghghi (2015) ETH Zürich: Evaporation from porous surfaces into turbulent airflows: from pores to eddies (07.07.2015)
75. Johannes Hommel (2016) Uni Stuttgart: Modeling biogeochemical and mass transport processes in the subsurface: investigation of microbially induced calcite precipitation (15.02.2016)
76. Xiulei Cao (2016) TU Eindhoven: Mathematical and numerical analysis for non equilibrium two phase flow models in porous media (22.03.2016)
77. Tao Zhu (2016) TU München: Unsteady porous-media flows (15.04.2016)
78. Andrew Fraser Harris (2016) University of Edinburgh: Development of a new non-linear elastic hydro-mechanical model for the simulation of compacted MX-80 bentonite: application to laboratory and in situ sealing experiments for geo-repository engineered barriers (04.05.2016)

79. Milad Aminzadeh (2016) ETH Zürich: Energy partitioning dynamics of evaporative porous surfaces – from pores to landscape scale (09.06.2016)
80. Linwei Hu (2016) ETH Zürich: Characterization of CO<sub>2</sub> plumes in deep saline formations using fluid pressure (15.08.2016)
81. Michael Sinsbeck (2016) Uni Stuttgart: An integrative approach for conditioning, robust design and control in the subsurface (06.09.2016)
82. Raheel Ahmed (2016) Swansea University: Finite-volume CVD-MPFA methods for fluid flow simulations in fractured porous media (07.09.2016)
83. Alexander Kissinger (2016) Uni Stuttgart: Regional scale site screening and investigation of possible impacts of deep subsurface utilization on hydrosystems – an assessment of relevant physical processes and suitable modeling approaches and methods (17.10.2016)
84. Mehdi Musivand Arzanfudi (2016) TU Delft: Computational modeling of multiphysics multidomain multiphase flow in fracturing porous media: Leakage hazards in CO<sub>2</sub> geosequestration (04.11.2016)
85. Franz Lindner (2016) Universität der Bundeswehr München: Untersuchungen zur mehrphasigen Strömung und Verdampfung in porösen Medien (08.11.2016)
86. Oliver Meister (2016) TU München: Sierpinski curves for parallel adaptive mesh refinement in finite element and finite volume methods (02.12.2016)
87. Abraham Isaac Martinez Noguez (2017) TU Berlin: Impacts of fast water infiltration and extraction on subsurface structures with fault zones (07.02.2017)
88. Luwen Zhuang (2017) Uni Utrecht: Advanced theories of water redistribution and infiltration in porous media: experimental studies and monitoring (28.02.2017)
89. Stefan Karpinski (2017) Uni Hasselt: Numerical analysis of an interior penalty discontinuous Galerkin scheme for two phase flow in heterogeneous porous media with discontinuous dynamic capillary pressure effects (11.05.2017)
90. Christoph Grüninger (2017) Uni Stuttgart: Numerical coupling of Navier-Stokes and Darcy flow for soil-water evaporation (18.05.2017)
91. Kai Häberle (2017) Uni Stuttgart: Fluid-phase transitions in a multiphase model of CO<sub>2</sub> sequestration into deep aquifers: a fully coupled analysis of transport phenomena and solid deformation (26.07.2017)
92. Kristina Rasmusson (2017) Uni Uppsala: Modeling of geohydrological processes in CO<sub>2</sub> storage – with focus on residual trapping (29.09.2017)
93. Xiaoguang Yin (2018) Uni Utrecht: Pore-scale mechanisms of two-phase flow in porous materials: Volume-of-Fluid method and pore-network modelling (23.02.2018)

94. Emna Mejri (2018) Uni Tunis: Modeling and analyses of salt precipitation on evaporation processes in the unsaturated zone (30.04.2018)
95. Markus Köppel (2018) Uni Stuttgart: Flow in heterogeneous porous media: fractures and uncertainty quantification (31.07.2018)
96. Anuradha Ashok Bhatia (2018) Uni Stuttgart: Moisture sorption in porous media: experimental and numerical enquiries applicable to the automotive passenger compartment (06.09.2018)
97. Martin Beck (2018) Uni Stuttgart: Volume-based conceptual approaches for the analysis of coupled hydraulic and geomechanical processes (15.11.2018)
98. Arthur Moncorgé (2018) ETH Zürich: Sequential fully implicit methods for multiscale modeling of compositional flows (19.11.2018)
99. Ioannis Zarikos (2018) Uni Utrecht: ~ Pore-scale experimental studies of two-phase flow in porous media: focus on discontinuous non-wetting phase (07.12.2018)
100. Laurence Beaudé (2018) Uni Côte d'Azur: Simulation numérique d'écoulements diphasiques compositionnels thermique en milieux poreux et ses applications à la géothermie haute énergie (10.12.2018)
101. Georg Futter (2019) Uni Stuttgart: Physical modeling of PEMFC performance and chemical membrane degradation (08.01.2019)
102. Matteo Cusini (2019) TU Delft: Dynamic multilevel methods for simulation of multiphase flow in heterogeneous porous media (15.02.2019)
103. Elmar Sauer (2019) Uni Stuttgart: A new dispersion contribution based on the PCP-SAFT equation of state in the framework of classical density functional theory (27.03.2019)
104. Mark Khait (2019) TU Delft: Delft Advanced Research Terra Simulator: general purpose reservoir simulator with operator-based linearization (10.12.2019)
105. Timo Koch (2020) Uni Stuttgart: Mixed-dimension embedded models for flow and transport processes in porous media with embedded tubular network systems (19.02.2020)
106. Dennis Gläser (2020) Uni Stuttgart: Discrete fracture modeling of multi-phase flow and deformation in fractured poroelastic media (23.03.2020)
107. Tabea Broecker (2020) TU Berlin: High-resolution integral modelling approach for flow and transport in groundwater – surface water interaction space
108. Maria Camila Osorno Tejada (2020) Uni Stuttgart: Multiscale Modelling of Hydro-mechanical Coupling in Porous Media.