

Heinz W. Engl

Books

- H.W.Engl, C.W.Groetsch (eds.); Inverse and Ill-Posed Problems, Academic Press, Orlando 1987
- H.W.Engl, H.Wacker, W.Zulehner (eds.), Case Studies in Industrial Mathematics, Teubner/Kluwer, Stuttgart/Dordrecht 1988
- H.W.Engl, J.McLaughlin (eds.), Inverse Problems and Optimal Design in Industry, Teubner, Stuttgart 1994
- H.W.Engl, W.Rundell (eds.), Inverse Problems in Diffusion Processes, SIAM, Philadelphia 1995
- H.W.Engl, Inverse Problems, Aportaciones Matematicas, Textos 8, Soc.Mat.Mexicana, Mexico City 1995
- H.W.Engl, A.K.Louis, W.Rundell (eds.), Inverse Problems in Geophysical Applications, SIAM, Philadelphia 1997
- H.W.Engl, A.K.Louis, W.Rundell (eds.), Inverse Problems in Medical Imaging and Nondestructive Testing, Springer, Wien/New York 1997
- H.W.Engl, Integralgleichungen, Springer, Wien/New York 1997
- V.Capasso, H.W.Engl, J. Periaux, Computational Mathematics Driven by Industrial Problems, Lecture Notes in Mathematics 1739, Springer, Berlin/Heidelberg/New York 2000
- H.W.Engl, M.Hanke, A.Neubauer, Regularization of Inverse Problems, Kluwer, Dordrecht 1996, 2nd Edition 2000
- D.Colton, H.W.Engl, A.K.Louis, J.McLaughlin, W.F.Rundell (eds.), Surveys on Solution Methods for Inverse Problems, Springer, Wien/New York 2000

Publications in Scientific Journals and Conference Proceedings

- (with H.Wacker, E.Zarzer) Bemerkungen zur Aufwandsminimierung bei Stetigkeitsmethoden sowie Alternativen bei der Behandlung der singulären Situation, ISNM 38, Birkhäuser 1977, 175-193
- Schwache Konvergenz asymptotisch regulärer Iterationsverfahren bei Fixpunktgleichungen nichtexpansiver Funktionen, ZAMM 57 (1977), T272-273
- (with H.Wacker, E.Zarzer) Bemerkungen zur Aufwandsminimierung bei Stetigkeitsmethoden sowie Alternativen bei der Behandlung der singulären Situation, ISNM 38, Birkhäuser 1977, 175-193
- On a problem of Sieklucki concerning shift-invariant mappings, Bull.Acad.Pol.Sc.(Ser.Math.Astr.Phys.) 25 (1977), 81-83
- Weak convergence of asymptotically regular sequences for nonexpansive mappings and connections with certain Chebyshev centers, Nonlinear Analysis 1 (1977), 495-501
- Some random fixed point theorems for strict contractions and nonexpansive mappings, Nonlinear Analysis 2 (1978), 619-626
- Weak convergence of Mann iterations for nonexpansive mappings without convexity assumptions, Boll.Un.Mat.Ital. (5) 14-A (1977), 471-475
- A general stochastic fixed point theorem for continuous random operators with stochastic domains, J.Math.Anal.Appl. 66 (1978), 220-231
- Random fixed point theorems, in: V. Lakshmikantham (ed.), Nonlinear Equations in Abstract Spaces, Academic Press 1978, 67-80
- Random fixed point theorems for multivalued mappings, Pacific Jour. Math. 76 (1978), 351-360
- (with M.Z.Nashed) Stochastic projectional schemes for random linear operator equations of the first and second kinds, Numer.Funct.Anal.Opt 1 (1979), 451-473
- Existence of measurable optima in stochastic nonlinear programming and control, Appl.Math.Opt. 5 (1979), 271-281
- (with M.Z.Nashed) Random generalized inverses and approximate solutions of random operator equations, in: A.T.Bharucha-Reid (ed.), Approximate Solution of Random Equations, Elsevier - North Holland 1979, 149-210

- (with M.Z.Nashed) Generalized inverses of random linear operators in Banach spaces, *Jour.Math.Anal.Appl.* 83 (1981), 582-610
- (with L.Lum) An elementary problem in topology, *Amer.Math.Monthly* 87 (1980), 303 + 88 (1981), 620
- (with M.Z.Nashed) New extremal characterizations of generalized inverses of linear operators, *Jour.Math.Anal.Appl.* 82 (1981), 566-586
- (with L.Cesari) Existence and uniqueness of solutions for nonlinear alternative problems in a Banach space, *Czech.Math.Jour.* 31 (1981), 670-678
- (with R.Kreß) On a singular perturbation problem for linear operator equations and the limiting behaviour of the solutions of an electrostatic boundary value problem, *Math.Meth.Appl.Sc.* 3 (1981), 249-274
- (with R.Kreß) Über ein singuläres Störungsproblem bei linearen Operatorgleichungen und das Grenzverhalten von Lösungen eines elektrostatischen Randwert- und Übergangsproblems, *ZAMM* 61 (1981), T237-238
- Stability of solutions to linear operator equations of the first and second kinds under perturbation of the operator with rank change, in: F.Natterer, G.Herman (eds.), *Mathematical Aspects of Computerized Tomography*, Springer Lecture Notes in Medical Informatics 8 (1981), 13-28
- Necessary and sufficient conditions for convergence of regularization methods for solving linear operator equations of the first kind, *Numer.Funct. Anal.Opt.* 3 (1981), 201-222
- (with A.Kirsch) On the continuity of the metric projection onto a convex set subject to an additional constraint, *Boll.Un.Mat.Ital.* (6) 1-A(1982), 81-86
- Notwendige und hinreichende Bedingungen für die Konvergenz von Regularisierungsverfahren zur Lösung linearer Operatorgleichungen erster Art, *ZAMM* 62 (1982), T323-325
- On least-squares collocation for solving linear integral equations of the first kind with noisy right-hand side, *Boll.Geodesia Sc.Aff.* 41,3 (1982), 291-313
- (with W.Schlöglmann) Mathematischer bzw. mathematisch-naturwissenschaftlicher Vorbereitungskurs zur Studienberechtigungsprüfung an der Universität Linz, *Zeitschrift für Hochschuldidaktik (Wien)*, Jg.6 (1982), Heft 2-3, 277-283
- A successive approximation method for solving equations of the second kind with arbitrary spectral radius, *Jour.of Integr.Equ.* 8 (1985), 239-247
- An analytic representation for selfmaps of a countably infinite set and its cycles, *Aequationes Mathematicae* 25 (1982), 90-96
- Behaviour of solutions of nonlinear alternative problems under perturbations of the linear part with rank change, in: C.Vinti (ed.), *Nonlinear Analysis and Optimization*, Springer Lecture Notes in Mathematics 1107 (1984), 82-101
- (with W.Römisch) Convergence of approximate solutions of nonlinear random operator equations with non-unique solutions, *Stoch.Anal.Appl.* 1(1983), 239-298
- (with A.Wakolbinger) On weak limits of probability distributions on Polish spaces, *Stoch.Anal.Appl.* 1 (1983), 197-203
- Regularization by least-squares collocation, in: P.Deuflhard, E.Hairer (eds.), *Numerical Treatment of Inverse Problems in Differential and Integral Equations*, Birkhäuser (Boston 1983), 345-354
- On the convergence of regularization methods for ill-posed linear operator equations, in: G.Hämmerlin, K.H.Hoffmann (eds.), *Improperly Posed Problems and Their Numerical Treatment*, ISNM 63, Birkhäuser (Basel 1983), 81-95
- (with E.Lindner) Ein Randwert- und Übergangsproblem für eine partielle Differentialgleichung im Zusammenhang mit der Berechnung von Wirbelströmen, *ZAMM* 64 (1984), T360-362
- (with W.Römisch) Approximate solutions of nonlinear random operator equations: Convergence in distribution, *Pacific Jour.of Math.* 120 (1985), 55-77
- (with E.Lindner) A combined boundary value and transmission problem arising from the calculation of eddy currents: Well-posedness and numerical treatment, *Jour.Appl.Math.Physics (ZAMP)* 35 (1984), 289-307
- Discrepancy principles for Tikhonov regularization of ill-posed problems leading to optimal convergence rates, *Jour.Opt.Th.Appl.* 52 (1987), 209-215
- Zur optimalen Parameterwahl bei der Tychonoff-Regularisierung inkorrekt gestellter Probleme, *ZAMM* 65 (1985), T375-376
- (with A.Neubauer) Optimal discrepancy principles for the Tikhonov regularization of integral equations of the first kind, in: G.Hämmerlin, K.H.Hoffmann(eds.), *Constructive Methods for the Practical Treatment of Integral Equations*, ISNM 73, Birkhäuser (Basel 1985), 120-141

- (with A.Neubauer) An improved version of Marti's method for solving ill-posed linear integral equations, *Math.of Comp.* 45 (1985), 405-416
- On the choice of the regularization parameter for iterated Tikhonov regularization of ill-posed problems, *Jour.of Approx.Theory* 49 (1987), 55-63
- (with A.Wakolbinger) Continuity properties of the extension of a locally Lipschitz continuous map to the space of probability measures, *Monatshefte f. Math.* 100 (1985), 85-103
- (with W.Römisch) Weak convergence of approximate solutions of stochastic equations with applications to random differential and integral equations, *Num.Funct.Anal.Opt.* 9 (1987), 61-104
- (with T.Langthaler) Numerical solution of an inverse problem connected with continuous casting of steel, *Zeitschr.f.Oper.Res.* 29 (1985), B185-B199
- (with A.Neubauer) Eine Variante der Marti-Methode zur Lösung inkorrekt gestellter linearer Integralgleichungen, die optimale Konvergenzraten liefert, *ZAMM* 66 (1986), T406-408
- Methods for approximating solutions of ill-posed linear operator equations based on numerical functional analysis, in: C.Micchelli, D.Pai, B.Limaye (eds.), *Methods of Functional Analysis in Approximation Theory*, ISNM 76, Birkhäuser 1986, 337-355
- (with A.Neubauer) On projection methods for solving linear ill-posed problems, in: A.Vogel (ed.), *Model Optimization in Exploration Geophysics*, Vieweg 1987, 73-92
- (with T.Langthaler, P.Manselli) On an inverse problem for a nonlinear heat equation connected with continuous casting of steel, in: K.H.Hoffmann, W.Krabs (eds.), *Optimal Control with Partial Differential Equations II*, ISNM 78, Birkhäuser 1987, 67-89
- (with A.Neubauer) Optimal parameter choice for ordinary and iterated Tikhonov regularization, in Buch 1(s.u.), 97-125
- (with A.Neubauer) Convergence rates for Tikhonov regularization in finite-dimensional subspaces of Hilbert scales, *Proc.of the Amer.Math.Soc.* 102 (1988), 587-592
- (with H.Gfrerer) A posteriori parameter choice for general regularization methods for solving linear ill-posed problems, *Appl.Num.Math.* 4 (1988), 395-417
- (with C.W.Groetsch) Projection-regularization methods for linear operator equations of the first kind, in: R.S.Anderssen, G.N.Newsam(eds.), *Special Program on Inverse Problems*, Proc.of the Centre of Math.Anal.17 (1988), Austral.Nat.University, 17-31
- (with A.Neubauer) A parameter choice strategy for (iterated) Tikhonov regularization of ill-posed problems leading to superconvergence with optimal rates, *Applic.Anal.* 27 (1988), 5-18
- (with C.W.Groetsch) A higher order approximation technique for restricted linear least-squares problems, *Bull. of the Austral.Math.Soc.* 37 (1988), 121-130
- (with E.Lindner) Computing eddy current losses in reactor coils, in Buch 2(s.u.), 1-19
- (with T.Langthaler) Control of the solidification front by secondary cooling in continuous casting of steel, in Buch 2(s.u.), 51-77
- (with G.Landl) A scheduling problem in the production line "steel making - continuous casting - hot rolling", in: H.Neunzert (ed.), *Proc. of the 2nd Europ.Symp.on Math. in Industry*, Teubner/Kluwer, Stuttgart/Dordrecht 1988, 301-317
- (with P.Manselli) Stability estimates and regularization for an inverse heat conduction problem in semi-infinite and finite time intervals, *Numer.Funct.Anal. and Opt.* 10 (1989), 517-540
- (with K.Kunisch, A.Neubauer) Convergence rates for Tikhonov regularization of nonlinear ill-posed problems, *Inverse Problems* 5 (1989), 523-540
- Regularization of ill-posed problems: Convergence rates, in: F.Kuhnert, B.Silbermann (eds.), *Problems and Methods in Mathematical Physics (9.TMP)*, Teubner, Leipzig 1989, 42-51
- (with T.Langthaler) Making a workpiece with spiral turns by means of forming cutters, in: J.Manley, S.McKee, D.Owens(eds.), *Proc. of the 3rd Europ.Symp. on Math. in Industry*, Teubner/Kluwer (Stuttgart/Dordrecht 1990), 313-332
- Wechselwirkungen zwischen Industrie- und Universitätsmathematik, in: J.Maaß, W.Schlöglmann (eds.), *Mathematik als Technologie?*, Deutscher Studienverlag, Weinheim 1989, 17-35
- (with H.Holl, T.Langthaler, K.Schwaha) Inverse solidification analysis - a valuable tool for computer aided process engineering, in: H.Y.Sohn, E.S.Geskin (eds.), *Metallurgical Processes for the Year 2000 and Beyond*, TMS, 1989, 139-154
- (with M.Hanke, A.Neubauer) Tikhonov regularization of nonlinear differential-algebraic equations, in: P.C.Sabatier (ed.), *Inverse Methods in Action*, Springer (Berlin 1990), 92-105

- (with H.F.Kauffmann, G.Landl, T.Langthaler) Distribution of event times in time-resolved fluorescence: The exponential series approach - algorithm, regularization, analysis, *Journ. of Computat. Physics* 95(1991), 1-28
- (with A.Neubauer) On an inverse problem from magnetostatics, in: W.L.Hogarth, B.J.Noye (eds.), *Computational Techniques and Applications: CTAC-89*, Hemisphere Publ. Comp., New York 1990, 3-15
- Inverse und inkorrekt gestellte Probleme, in: S.D.Chatterji, U.Kulisch, D.Laugwitz, R.Liedl, W.Purkert (eds.), *Jahrbuch Überblicke Mathematik 1991*, Vieweg, Wiesbaden 1991, 77-92
- (with A.Binder, R.Scheidl) Numerische Behandlung des Ausbauchens der Strangschale von Gießsträngen, *ZAMM* 71(1991), T680-T681
- (with G.Hodina) Uniform convergence of regularization methods for linear ill-posed problems, *Journ. of Computat. and Appl. Math.* 38(1991), 87-103
- (with H.F.Kauffmann, G.Landl) Multi-particle relaxation in electronically excited polymers: Distribution of transition rates from fluorescence data - a numerical approach, in: W.Gans, A.Blumen, A.Amann (eds.), *Large Scale Molecular Systems - Quantum and Stochastic Aspects: Beyond the Simple Molecular Picture*, Nato ASI Series, Plenum, New York 1991, 503-510
- (with H.F.Kauffmann, G.Landl) Distribution of event-times in polymer relaxation: On the numerical inversion of the KWW-law from fluorescence convolution data, in: A.Blumen, J.Klafter, D.Haarer (eds.), *Dynamical Processes in Condensed Molecular Systems*, World Scientific, Singapore 1990, 90-101
- (with A.Neubauer) Reflector design as an inverse problem, in: M.Heiliö (ed.), *Proc. of the Fifth European Conference on Mathematics in Industry*, Teubner/Kluwer, Stuttgart/Dordrecht 1991, 13-24
- (with H.F.Kauffmann, G.Landl) Nonexponential polymer relaxation: Distributions of event-times from fluorescence data, in: J.Drake, J.Klafter, R.Kopelman (eds.), *Dynamics in Small Confining Systems*, Materials Research Society, EA-22, Pittsburgh 1990, 105-108
- (with A.Binder, S.Vessella) Some inverse problems for a nonlinear parabolic equation connected with continuous casting of steel: Stability estimates and regularization, *Numerical Funct. Analysis and Optim.* 11(1990), 643 - 671
- (with R.S.Anderssen) The role of linear functionals in improving convergence rates for parameter identification via Tikhonov regularization, in: M.Yamaguti, K.Hayakawa, Y.Iso, M.Mori, T.Nishida, K.Tomoeda, M.Yamamoto (eds.), *Inverse Problems in Engineering Sciences, ICM-90 Satellite Conf. Proc.*, Springer, Tokyo 1991, pp.1-10
- (with R.S.Anderssen, O.Scherzer) Parameter identification from boundary measurements in a parabolic equation arising from geophysics, *Nonlinear Analysis* 20(1993), 127-156
- (with V.Isakov) On the identifiability of steel reinforcement bars in concrete from magnetostatic measurements, *European Journal of Applied Mathematics* 3(1992), 255 - 262
- (with A.Binder, C.W.Groetsch, A.Neubauer, O.Scherzer) Weakly closed nonlinear operators and parameter identification in parabolic equations by Tikhonov regularization, *Applicable Analysis* 55(1994), 215-234
- (with B.Hofmann, H.Zeisel) A decreasing rearrangement approach for a class of ill-posed non-linear integral equations, *Journ. of Integral Equations and Appl.* 5(1993), 443-463
- (with G.Landl) Convergence rates for maximum entropy regularization, *SIAM Journal on Numerical Analysis* 30(1993), 1509- 1536
- (with K.Kunisch, O.Scherzer) Optimal a-posteriori parameter choice for Tikhonov regularization for solving nonlinear ill-posed problems, *SIAM Journal on Numerical Analysis* 30(1993), 1796- 1838
- (with G.Landl) Maximum entropy regularization of nonlinear ill-posed problems, in: V.Lakshmikantham (ed.), *Proceedings of the First World Congress of Nonlinear Analysts*, Vol.I, de Gruyter, Berlin 1996, pp. 513- 525
- (with W.Rundell, O.Scherzer) A regularization scheme for an inverse problem in age-structured populations, *Journ. Math. Analysis and Appl.* 182(1994), 658- 679
- Regularization methods for the stable solution of inverse problems, *Surveys on Mathematics for Industry* 3(1993), 71-143
- (with A.Neubauer) Convergence rates for Tikhonov regularization of implicitly defined nonlinear inverse problems with an application to inverse scattering, in: S.Kubo (ed.), *Inverse Problems*, Atlanta Technology Publications, Atlanta 1993, 90-98
- (with M.Hanke) An optimal stopping rule for the nu-methods for solving ill-posed problems using Christoffel functions, *Journ. of Approx. Theory* 79(1994), 89-108
- (with S.Vessella) A stability results for a magnetostatic inverse problem, *Results of Mathematics* 26(1994), 20- 27

- (with L.Holzleitner, K.Mahmoud) Optimum structural design using MSC/NASTRAN and sequential quadratic programming, *Computers and Structures* 52(1994), 437- 447
- (with W.Grever) Using the L-curve for determining optimal regularization parameters, *Numerische Mathematik* 69(1994), 25-31
- (with W.Kühlein, O.Scherzer) Verbesserung der Tiefziehfähigkeit von Aluminium, in: *Zukunftsorientierte Werkstoffentwicklung*, Christian- Doppler- Gesellschaft, Wien (Austria) 1994
- (with A.Binder, W.Grever, K.Mörwald) Optimal cooling strategies in continuous casting of steel with variable casting speed, *Inverse Problems in Engineering* 2 (1996), 289-300
- (with J.Chen, G.Lndl, K.Zeman) Optimal strategies for the cooling of steel strips in hot strip mills, *Inverse Problems in Engineering* 2 (1995), 103- 118
- (with O.Scherzer, M.Yamamoto) Uniqueness of forcing terms in linear partial differential equations with overspecified boundary data, *Inverse Problems* 10(1994), 1253-1276
- (with B.Blaschke, W.Grever, M.Klibanov) An application of Tikhonov regularization to phase retrieval, *Nonlinear World* 3 (1996), 771- 786
- (with G.Lndl) Inverse Wärmeleitungsprobleme in der Stahlindustrie, *Berg- und Hüttenmännische Monatshefte* 141,4 (1996), 208- 213
- (with B.Blaschke), Regularization methods for nonlinear ill-posed problems with applications to phase reconstruction, in: H.W.Engl, A.K.Louis, W.Rundell (eds.), *Inverse Problems in Medical Imaging and Nondestructive Testing*, Springer, Wien/New York 1997, 17-35
- (with H.Zeisel, F.Kokert, H.Druckenthaler, A.Schatz), Mathematisches Modell und numerische Simulation der Vorgänge im Hochofen, *Berg- und Hüttenmännische Monatshefte* 141,9 (1996), 389- 392
- (with C.Stangl) Existence and uniqueness of solutions of the equilibrium equations for a class of nonlinearly elastic materials, *ZAMM* 78(1998), 467-481
- (with A.Nanda) Tikhonov regularization for an inverse source problem for a coupled system of reaction-diffusion equations, *Journ. of Inverse and Ill-Posed Problems* 6 (1998), 583-604
- (with H.Druckenthaler, H.Zeisel, A.Schiefermüller, G.Kolb, A.Ferstl, A.Schatz), Online simulation of the blast furnace, *Advanced Steel* (1997-98), 58-61
- (with P.Deufhard, O.Scherzer) A convergence analysis of iterative methods for the solution of nonlinear ill-posed problems under affinely invariant conditions, *Inverse Problems* 14(1998), 1081-1106
- (with M.Burger, V.Capasso), Inverse problems related to the crystallization of polymers, *Inverse Problems* 15(1999), 155-173
- (with A.Seidel), Recovering discrete and continuous parts of the solution of linear ill-posed problems by Tikhonov regularization, *Journ. of Inverse and Ill-Posed Problems* 7(1999), 165-183
- Inverse problems and their regularization, in: V.Capasso, H.W.Engl, J. Periaux, *Computational Mathematics Driven by Industrial Problems*, Lecture Notes in Mathematics 1739, Springer, Berlin/Heidelberg/New York 2000, 128-150
- (with J.Zou), A new approach to convergence rate analysis of Tikhonov regularization for parameter identification in heat conduction, *Inverse Problems* 16 (2000), 1907-1923
- (with M.Burger, V.Capasso, G.Eder) Modelling and parameter-identification in non-isothermal crystallization of polymers, in: L.Arkeryd, J.Bergh, P.Brenner, R.Pettersson (eds.), *Progress in Industrial Mathematics at ECMI 98*, Teubner, Stuttgart 1999, 114-121
- (with O.Scherzer) Convergence rates results for iterative methods for solving nonlinear ill-posed problems, in: D.Colton, H.W.Engl, A.K.Louis, J.McLaughlin, W.F.Rundell (eds.), *Surveys on Solution Methods for Inverse Problems*, Springer, Wien/New York 2000, 7-34
- (with M.Burger), Training neural networks with noisy data as an ill-posed problem, *Advances in Computational Mathematics* 13 (2000), 335-354
- (with C.Carthel), Identification of heat transfer functions in continuous casting of steel by regularization, *Journ. of Inverse and Ill-Posed Problems* 8 (2000), 677-693
- Regularization methods for solving inverse problems, in: J.M.Ball and J.C.R. Hunt (eds.), *ICIAM99: Proceedings of the Fourth International Congress on Industrial and Applied Mathematics*, Oxford University Press, 2000, 42-67
- Inverse problems and their regularization, in: V. Capasso, H. Engl, J. Periaux (eds.), *Lecture Notes in Mathematics*, CIME Subseries, Springer-Verlag, 2000, 127-150
- (mit T.Felici), On shape optimization of optical waveguides using inverse problem techniques, *Inverse Problems* 17 (2001), 1141-1162
- (with P.Kügler) Identification of a temperature dependent heat conduction by Tikhonov regularization, *Journ. of Inverse and Ill-Posed Problems* 10 (2002), 67-90

- (with M. Burger, P. Markowich, P. Pietra), Identification of doping profiles in semiconductor devices, *Inverse Problems* 17 (2001), 1765-1795
- (with M. Burger, P. Markowich), Inverse doping problems for semiconductor devices, in: Chan, Huang, Tang, Xu, Ying (eds.), *Recent Progress in Computational and Applied PDEs*, Kluwer Academic Publishers, 2001, 39-54
- (with A. Leitao) A Mann iterative regularization method for elliptic Cauchy problems, *Numer. Funct. Anal. Optim.* 22 (2001), 861-884
- (with P. Kügler) The influence of the equation type on iterative parameter identification problems which are elliptic or hyperbolic in the parameter, *Europ. Journ. of Appl. Math.* 14 (2003), 129-163
- Identification of parameters in polymer crystallization, semiconductor models and elasticity via iterative regularization methods, in: V.G. Romanov, S.I. Kabanikhin, Yu.E. Anikonov and A.L. Bukhgeim (eds.), *Ill-Posed and Inverse Problems*, VSP Niederlande, 2004, 99-126
- (with M. Burger, J. Haslinger, U. Bodenhofer), Regularized data-driven construction of Fuzzy controllers, *Journ. of Inverse and Ill-Posed Problems* 10 (2002), 319-344
- (with M. Rosenkranz, B. Buchberger), Solving linear boundary value problems via non-commutative Gröbner bases, *Applicable Analysis* 82 (2003), 655-675
- (with P. Kügler), Parameter Identification in Industrial Problems via Iterative Regularization Methods, in: A. Fitt (eds.), *ECMI 2002*, Springer 2003, 13-29
- (with P. Kügler), Nonlinear Inverse Problems: Theoretical Aspects and Some Industrial Applications, in: V. Capasso and J. Periaux (eds.), *Multidisciplinary Methods for Analysis, Optimization and Control of Complex Systems*, Springer Heidelberg, Series Mathematics in Industry, 2005, 3-48
- (with M. Burger, A. Leitao, P. Markowich), On inverse problems for semiconductor equations, *Milan Journal of Mathematics* 72 (2004), 273-314
- (with H. Egger, M. Klibanov), Global uniqueness and Hölder stability for recovering a nonlinear source term in a parabolic equation, *Inverse Problems* 21 (2005), 271-290
- (with A. Hofinger, S. Kindermann), Convergence rates in the Prokhorov metric for assessing uncertainty in ill-posed problems, *Inverse Problems* 21 (2005), 399-412
- (with H. Egger), Tikhonov regularization applied to the inverse problem of option pricing: convergence analysis and rates, *Inverse Problems* 21 (2005), 1027-1045
- (with P. Fusek, S. Pereverzev) Natural linearization for the identification of nonlinear heat transfer laws, *Journal of Inv. and Ill-Posed Problems* 13 (2005), 567-582
- (with J. Lu, P. Schuster) Inverse bifurcation analysis: application to simple gene systems, *Algorithms for Molecular Biology*, Vol. 1:11 (2006)
- (with G. Göckler, A. Schatz, H. Zeisel) Modelling and numerics for the transient simulation of the blast furnace process, in: R. Jeltsch, Ta-Tsien Li, Ian H. Sloan eds., *Some Topics in Industrial and Applied Mathematics*, Proceedings of Shanghai Forum on Industrial and Applied Mathematics 2006, 95-119
- (with M. Burger, R. Eisenberg) Inverse problems related to ion channel selectivity, *SIAM Journal on Applied Mathematics* 67 (2007), 960-989
- (with J. Lu, R. Machné, P. Schuster) Inverse bifurcation analysis of a model for the mammalian G1/S regulatory module, in: S. Hochreiter, R. Wagner (eds.) *Proceedings of Bioinformatics in Research and Development, Lecture Notes in Bioinformatics (LNBI 4414)*, Springer, BIRD 2007, 168-184
- (with S. Kindermann, P. Mayer, H. Albrecher) Identification of the local speed function in a Levy model for option pricing, *Journal of Integral Equations and Applications* 20 (2008), 161-200
- (with E. Resmerita, A. N. Iusem) The EM algorithm for ill-posed integral equations: a convergence analysis, *Inverse Problems* 23 (2007), 2575-2588
- Calibration problems – an inverse problem view, *Wilmott magazine* (2007), 16-20
- (with V. Capasso, S. Kindermann) Parameter Identification in a random environment exemplified by a multiscale model for crystal growth, *SIAM Multiscale Modelling and Simulation* 7 (2008), 814-841
- (with C.B. Drab, J.R. Haslinger, G. Offner, R.U. Pfau, W. Zulehner) Dynamic Simulation of Crankshaft Multibody Systems, *Multibody System Dynamics* 22 (2009), 133-144
- (with C. Flamm, P. Kügler, J. Lu, S. Müller, P. Schuster) Inverse Problems in Systems Biology, *Inverse Problems* 25 (2009), 1-51
- (with R. Ramlau) Regularization of Inverse Problems, in: B. Engquist (Ed.), *Encyclopedia of Applied and Computational Mathematics* (2015), 1233-1241

Co-inventor in the following patents:

- Verfahren zur Optimierung von Auslegung und Betrieb eines Reduktionsverfahrens, Österreich, patent number AT 407 993 B
Australien, patent number 763962
Taiwan, patent number A400311.TW 165784 89103102
Südafrika, patent number 2001/6635
USA, patent number US 6,669,754 B1
- Mathematical Design of Ion Channel Selectivity, USA, patent number US 8335 671