Curriculum Vitae   Bülent Karasözen

PERSONAL DATA

    Date of Birth   : 19 November 1950
    Place of Birth : Eskişehir, TURKEY
    Citizenship   : Turkish
    Phone   : +90 533 474 8001
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EDUCATION   Technische Universität Berlin

    Ph.D., Control and System Theory, 1981

    M.S., Mechanical Engineering, 1974

    B.S., Mechanical Engineering, 1970

EMPLOYMENT   Middle East Technical University, Ankara

    Director of the Institute of Applied Mathematics: March 2012 – November 2017

    Head of the Scientific Computing Program of the Institute of Applied Mathematics: August 2002 – March 2012,

    Professor: 10/1996 – 11/2017, Department of Mathematics

    Associate Professor: 10/1988 – 10/1996, Department of Mathematics

    Assistant Professor: 10/1985 – 10/1988, Department of Mathematics

    Instructor: Department of Mathematics

    Technische Universität Berlin

    1972-1974: Teaching Assistant: Institute for Thermo and Fluiddynamics

RESEARCH INTERESTS   Optimal control of PDEs, discontinuous Galerkin method, model order reduction, uncertainty quantification

RESEARCH VISITS

    9/2011-2/2012: Rice University, Department of Computational and Applied Mathematics, Fulbright scholarship

    6/2009, 6/2010, 6/2011: TU Darmstadt, Department of Mathematics, DAAD scholarship

    8/2005-8/2005, 8/2007, 1/2009-2/2009: Carnegie-Mellon University, Department of Chemical Engineering, NSF-TÜBITAK project

6/2007 –8/2007: TU Darmstadt, Augsburg University, TU Karlsruhe, Germany, DAAD scholarship

7/2002, 1/2005-2/2005, 6/2005-7/2005: TU Darmstadt, Department of Mathematics & Mechanical Engineering, Germany, VW Foundation

1/2000 - 2/2000, 6/2000 - 7/2000: University of Geneva, Department of Mathematics, Swiss National Science Foundation

1/1999 – 6/1999: Feza Gürsey Institute, Istanbul, TÜBITAK

7/1995 – 8/1995, 10/1996 –3/1997, 9/1997, 9/1998: TU Darmstadt, Department of Mathematics, Germany

5/1995: Rostov State University, Department of Computational Mathematics and Mechanics, Russia, TÜBITAK

9/1985: TU Darmstadt, Department of Mathematics, Germany

Projects

Optimization with Partial Differential Equations, Department of Mathematics, TU Darmstadt, DAAD Project, 2008-2011.

Hybrid Systems: Modeling, Simulation and Optimization, Department of Chemical Engineering, Carnegie-Mellon University, Department of Industrial Engineering, Koc University, NSF-TÜBITAK Project, 2005-2009.

Continuous Optimization Methods and Applications, TÜBITAK Integrated PhD Program, 2004-2008.

Stirrer Optimization, Department of Mechanical Engineering, TU Darmstadt, Volkswagen Foundation Project, 2002-2005.

Financial and Insurance Mathematics, Department of Mathematics, University of Kaiserslautern, DAAD Project, 2003-2006.

Dynamical Systems, Department of Mathematics, Rostov University, Rostov-on-Don, TÜBITAK Project, 1995-1999.

Communications in Mathematics & Education Improvement of Networking Infrastructure NATO Networking Infrastructure, Department of Mathematics, Rostov University, Rostov-on-Don, NATO, 1996-1997.

Edited Books, Special Issues, Proceedings

M. Tezer-Sezgin, B. Karasözen, International conference on boundary element and meshless techniques XVII.. European Journal of Computational Mechanics, 26(4):351-352, 2017,
http://www.tandfonline.com/doi/abs/10.1080/17797179.2017.1396035

B. Karasözen, M. Manguoğlu, M. Tezer-Sezgin, S. Göktepe, Ö. Uğur, Numerical Mathematics and Advanced Applications - ENUMATH 2015, Springer, 2016,
https://link.springer.com/book/10.1007 2F978-3-319-39929-4

E. Akyıldız, Ö.L. Gebizlioğlu, B. Karasözen, Ö. Uğur, G.W. Weber, Recent Advances in Applied and Computational Mathematics: ICACM-IAM-METU, Journal of Computational and Applied Mathematics, Volume 259, Issue PART B, 2014,
http://www.sciencedirect.com/science/article/pii/S0377042713005773

L. Devroye, B. Karasözen, M. Kohler, R. Korn, Recent Developments in Applied Probability and Statistics, Physica Verlag, Springer, 2010,
https://link.springer.com/book/10.1007 2F978-3-7908-2598-5

A. Dress, B. Karasözen, P. F. Stadler, G.W. Weber, Special issue on Networks in Computational Biology is based on a workshop at Middle East Technical University in Ankara, Turkey, September 10-12, 2006, Discrete Applied Mathematics 157, 2009,
http://www.sciencedirect.com/science/article/pii/S0166218X09001747

M. Türkay, B. Karasözen, L.T. Biegler, T. J. McAvoy, Hybrid systems: Modeling, simulation and optimization, Journal of Process Control, 19, 2009,
http://www.sciencedirect.com/science/article/pii/S0959152409001449

M. Dür, B. Karasözen, G. W. Weber, Special Issue on Challenges of continuous optimization in theory and applications is absed on the Fourth Annual Workshop of EURO Working Group on Continuous Optimization (EUROPT), Rhodos, Greece, July 2–3, 2004, European Journal of Operational Research, 181, 2007.

B. Karasözen, G. W. Weber, M. C. Pınar, T. Terlaky, Feature cluster "Advances in continuous optimization" is based on the third annual workshop of EUROPT workshop in Istanbul, Turkey 4–5 July, 2003, European Journal of Operational Research, 169, 2006.

B. Karasžen, A. Rubinov, G. W. Weber, Special issue on Optimization in Data Mining, is based on the XXII EURO Summer Institute, Ankara, Turkey 9–25 July, 2004, European Journal of Operational Research, 173, 2006.

O. Çelebi, B. Karasözen, Proceedings of the International Symposium on Numerical Analysis, September 1-4, 1987 Middle East Technical University, 1989.

B. Karasözen, Proceedings of Numerical Analysis Symposium, Ankara 23-25 December 1983, Middle East Technical University, 1984.

CONFERENCES
CO-ORGANIZED

European Conference on Numerical Mathematics and Advanced Applications (ENUMATH), September 14-18, 2015, METU, Ankara, Turkey.

International Conference on Applied and Computational Mathematics (ICACM), 10th Anniversary of the Institute of Applied Mathematics (IAM) at METU, 3-6 October 2012.

Complex Systems - Theory and Applications in Sciences and Engineering, Ankara, May 14-15, 2009

Workshop on Recent Developments in Applied Probability and Statistics, Dedicated to the memory of Professor Jïgen Lehn, Ankara, April 23-24, 2009

Workshop on Hybrid Systems; Modeling, Simulation & Optimization, Istanbul, May 14-17, 2008

Networks in Computational Biology, Ankara, September 10-12, 2006

Turkish-German Summer Academy in Advanced Engineering, Çeşme-Kuşadası, 1997-2006

EURO Summer Institute Optimization and Data Mining, Ankara, July 9-25, 2004

Workshop on Challenges of Continuous Optimization in Theory and Applications, Rhodos July 2-3, 2004

Workshop on Advances in Continuous Optimization, Istanbul, July 4-5, 2003

International Conference on Mathematical Modeling and Scientific Computing, Ankara, Konya, April 2-6, 2001

International Numerical Analysis Conference, Ankara, 1987

Symposium on Numerical Analysis and Applications, Ankara, 1985

Numerical Analysis Symposium, Ankara, 1983

Teaching

Graduate courses

Introduction to Scientific Computing, Numerical Optimization, Optimal Control with Partial Differential Equations, Numerical Analysis, Numerical Methods for Ordinary Differential Equations, Numerical Methods for Partial Differential Equations, Adaptive Finite Elements, Model Order Reduction, Uncertainty Quantification.

Undergraduate courses

Calculus, Introductory Differential Equations, Numerical Analysis, Numerical Solution of Differential Equations, Dynamical Systems Math 410 Computational Problem Solving in Mathematical Modelling.

PhD

1. Optimal Control and Reduced Order Modelling of Fitzhugh-Nagumo Equation, Tuğba Küçükseyhan, 2017

2. Discontinuous Galerkin Finite Elements with Structure Preserving Integrators for Gradients Flow Equations, Ayşe Sarıaydın Filibelioğlu, 2016

3. Adaptive discontinuous Galerkin methods for non-linear reactive flows, Murat Uzunca, 2014

4. Local Improvements to Reduced Order Approximations of PDE Constrained Optimization Problems, Tuğa Akman, 2014

5. Derivative free algorithms for large scale non-smooth optimization and applications, Ali Hakan Tor, 2013

6. Solving optimal control time-dependent diffusion-convection-reaction equations by space-time discretization, Zahire Seymen, 2013

7. Adaptive Discontinuous Galerkin Methods For Convection Dominated Optimal Control Problems, Hamdullah Yücel, 2012

8. Space-Time Discretization of Optimal Control of Burgers equation using both optimize-then-discretize and discretize-then-optimize approaches, Fikriye Nuray Yılmaz, 2011

9. A Semismooth Newton Method for Generalized Semi-Infinite Programming Problems, Ayseun Tezel-Özturan , 2010

10. Geometric Integrators for Coupled Nonlinear Schrödinger Equations, Ayhan Aydın, 2005

11. Modified Stationary Iterative Methods for Linear Systems of Equations, Ahmet Yašar Özban, 1996

12. Iterated Defect Correction Methods for Semi-Explicit Differential-Algebraic Equations, Şennur Somalı-Uzuner, 1990

MsC

1. Electricity Load and Price Forecasting of Turkish Electricity Markets, Oguz Kalay, 2018.

2. Numerical Solution of Fisher's Equation with Discontinuous Galerkin Method, Fehmi Özsoy, 2015.

3. Multigrid Methods for Optimal Control Problems Governed by Convection-Diffusion Equations, Özgün Murat Arslantaş, 2015.

4. Numerical Simulation of Advective Lotka-Volterra Systems by Discontinuous Galerkin Method, Senem Aktaş, 2015.

5. Energy preserving methods for Korteweg de Vries type equations, Görkem Şimşek, 2011.

6. Discontinuous Galerkin methods for time dependent advection dominated optimal control problems, Tuğba Akman, 2011.

7. Computation and Analysis of Spectra of Large Networks with Undirected Graphs, Ögze Erdem, 2010.

8. Computation and Analysis of Spectra of Large Networks with Directed Graphs, Ayşe Sarıaydın, 2010.

9. Parameter Estimation in Generalized Linear Models with Tikhanov Regularization, Belgin Kayhan, 2010.

10. Multilevel Derivative-Free Optimization, Bengisen Pekmen, 2009.

11. Statistical Learning and Optimization Methods for Improving the Efficiency in Landscape Image Clustering and Classification Problems, Selime Gürol, 2005.

12. Derivative Free Optimization Methods: Application in Stirrer Configuration and Data Clustering, Başak Akteke, 2005.

13. Mathematical Modelling of Enzymatic Reactions, Simulation and Parameter Estimation, Süreyya Özğür, 2005.

14. Smooth and non-s mooth Newton Type methods for solving semi-infinite programming, Aysun Tezel, 2005.

15. Numerical Bifurcation Analysis of Cosymmetric Dynamical Systems, Ömer Caner Gemici, 2003.

16. Multisymplectic Pseudospectral Methods for Nonlinear Schrödinger Equation, Zerrin Geçmen, 2002.

17. Numerical Integration of Constrained Hamiltonian Systems, Burcu Gürtunca, 1999.

18. Poisson Integrators for Completely Integrable Hamiltonian Systems, Ayhan Aydın, 1998.

19. Numerical Solution of Hamiltonian Systems in Normal Form, Canan Çelik, 1992.

20. Multigrid Methods for Solutions of Vector Equations, Uğr S. Uçar, 1991.

21. Adaptive Moving Grid Methods for Quasilinear Parabolic Systems, A. Al-Khawajah, 1990.

22. Implicit Finite Difference Schemes for First Order Variable Coefficient Hyperbolic Partial Differential Equations, Ömür Umut, 1987.

23. Collocation Methods for Linear Two Point Boundary Value Problems by Using Monomial Basis, Awni A. Saman, 1987.

24. Variable Step Trapezoidal Method for Hyperbolic and Parabolic Equations, Aydan Pamir, 1985.

25. Shape Preserving Quadratic Spline Interpolation", Nuray Gürson, 1985.

26. Preconditioned Krylov Subspace Methods for Solving Nonsymmetric Linear Systems, Aylan Aydingör, 1985

27. Multistep Methods for Differential/Algebraic Equations, Şennur Uzuner, 1985

28. Variable-step Contractive Multi-Step Methods, A. Rauf, 1984

29. Strongly Stable Semi-Implicit Runge-Kutta Methods, Melek Yargucu, 1984

30. Root Finding Process in Interval Arithmetic, Erdal Atabek, 1983

31. The Regula Falsi Method and Its Modification, Ali Ihsan Hasçelik, 1983

32. Finite Difference Solutions of Two Point Boundary Value Problems, Hüseyin Ölmez, 1983

ACADEMIC
MEMBERSHIPS

Turkish Mathematical Society (TMD)

American Mathematical Society (AMS)

Society for Industrial and Applied Mathematics (SIAM)

The Continuous Optimization Working Group of EURO (EUROPT)

EDITORIAL

International Journal on Geomathematics (GEM)
http://www.springer.com/mathematics/applications/journal/13137

Numerical Algebra, Control and Optimization (NACO)
https://aimsciences.org/journals/home.jsp?journalID=22

TWMS(Turkic World Mathematical Society) Journal of Applied and Engineering Mathematics http://jaem.isikun.edu.tr/web/

PUBLICATIONS

SCI, 87 items, 514 citations, H-index: 11
Scopus, 102 items, 586 citations, H-index 11
MathSciNet, 81 item, 224 citations
Google Scholar: 1480 citations, H-index 19
Journal Articles

S. Yıldız, M. Uzunca, B. Karasözen, *Structure-preserving Reduced Order Modeling of non-traditional Shallow Water Equation* , to appear in "Model reduction of complex dynamical systems", Springer International Series of Numerical Mathematics

B. Karasözen, S. Yıldız, M. Uzunca, *Structure Preserving Model Order Reduction of Shallow Water Equations*, Mathematical Methods in the Applied Sciences, 2021, 44, 476-492, https://doi.org/10.1002/mma.6751

S. Kozpınar, M. Uzunca, B. Karasøzen, *Pricing European and American options under Heston model using discontinuous Galerkin finite elements*, Mathematics and Computers in Simulation, 2020, 177, 568–587, https://doi.org/10.1016/j.matcom.2020.05.022

E. Karasözen, B. Karasözen, *Earthquake location methods*, GEM - International Journal on Geomathematics, 11, 13, 2020, https://doi.org/10.1007/s13137-020-00149-9

Kareem T. Elgindy, B. Karasözen, *Distributed optimal control of viscous Burgers' equation via a high-order, linearization, integral, nodal discontinuous Gegenbauer-Galerkin method*, Optimal Control, Applications and Methods, 41,253—277, 2020, https://doi.org/10.1002/oca.2541

B. Karasözen, M. Uzunca, T. Küçükseyhan, *Reduced Order Optimal Control of the Convective FitzHugh-Nagumo Equations*, Computers and Mathematics with Applications, 79(4), 982–995, 2020, https://doi.org/10.1016/j.camwa.2019.08.009

Kareem T. Elgindy, B. Karasözen, *High-Order Integral Nodal Discontinuous Gegenbauer-Galerkin Method for Solving Viscous Burgers' Equation* International Journal of Computer Mathematics, 96(10), 2039—2078, 2019, https://doi.org/10.1080/00207160.2018.1554860

T. Akman Yılız, M. Uzunca, B. Karasözen, *Structure Preserving Reduced Order Modeling for Gradient Systems*, Applied Mathematics and Computation, Computational Mathematics, 347, 194–209, 2019, https://doi.org/10.1016/j.amc.2018.11.008

B. Karasözen, M. Uzunca, *Energy preserving model order reduction of the nonlinear Schrödinger equation*, Advances in Computational Mathematics, 44(6), 1769–1796 , 2018, https://doi.org/10.1007/s10444-018-9593-9

B. Karasözen, M. Uzunca, A. Sarıaydın-Filibelioğlu, H. Yücel, *Energy Stable Discontinuous Galerkin Finite Element Method For The Allen-Cahn Equation*, International Journal of Computational Methods, 15(3), 1850013, 2018, https://doi.org/10.1142/S0219876218500135

T. Akman, B. Karasözen, Z. Kanar-Seymen, *Streamline Upwind/Petrov Galerkin Solution of Optimal Control Problems Governed by Time Dependent Diffusion-Convection-Reaction Equations*, TWMS Journal of Applied and Engineering Mathematics, 7(2), 221-235, 2017,

B. Karasözen, M. Uzunca, T. Küçükseyhan, *Structure preserving integration and model order reduction of skew-gradient reaction–diffusion system*, Annals of Operational Research, 258, 79-106, 2017, https://doi.org/10.1007/s10479-015-2063-6

A. Sarıaydın-Filibelioğlu , B. Karasözen, M. Uzunca, *Energy Stable Interior Penalty Discontinuous Galerkin Finite Element Method for Cahn–Hilliard Equation*, International Journal of Nonlinear Sciences and Numerical Simulation, 18(5),303-314,2017, https://doi.org/10.1515/ijnsns-2016-0024

M. Uzunca, T. Küçükseyhan, H. Yücel, B. Karasözen, *Optimal control of convective FitzHugh—Nagumo equation* Computers & Mathematics with Ap-

plications, 9(73), 2151–2169, 2017,
http://dx.doi.org/10.1016/j.camwa.2017.02.028

M. Uzunca, B. Karasözen, T. Küçükseyhan *Moving Mesh Discontinuous Galerkin Methods for PDEs with Traveling Waves* Applied Mathematics and Computation, 292, 9—18, 2017,
http://dx.doi.org/10.1016/j.amc.2016.07.034

O. Hastürk, A. Sivas, B. Karasözen, U. Demirci, N. Hasırcı, V. Hasırcı *Quantification of Type, Timing, and Extent of Cell Body and Nucleus Deformations Caused by the Dimensions and Hydrophilicity of Square Prism* Advanced Healthcare Materials, 5(23), 2972–2982, 2016,
http://dx.doi.org/10.1002/adhm.201600857.

B. Karasözen *Derivative Free Multilevel Optimization* TWMS Journal of Applied and Engineering Mathematics, 5, 46-60, 2015.

B. Karasözen, C. Akkoyunlu, M. Uzunca *Model order reduction for nonlinear Schrödinger equation* Applied Mathematics and Computation, 258, 509–519, 2015. http://dx.doi.org/10.1016/j.amc.2015.02.001

B. Karasözen, M. Uzunca *Time-Space Adaptive Discontinuous Galerkin Method for Advection-Diffusion Equations with Non-Linear Reaction Mechanism* International Journal on Geomathematics, 5, 255–288, 2014
http://dx.doi.org/10.1007/s13137-014-0067-z

T. Akman, B. Karasözen *Variational Time Discretization Methods for Optimal Control Problems Governed by Diffusion- Convection-Reaction-Equations* Journal of Computational and Applied Mathematics, 272, 41–56, 2014
http://dx.doi.org/10.1016/j.cam.2014.05.002

M. Uzunca, B. Karasözen, M. Manguoğlu *Adaptive discontinuous Galerkin methods for non-linear diffusion-convection-reaction equations* Computers and Chemical Engineering, 68, 24–37, 2014
http://dx.doi.org/10.1016/j.compchemeng.2014.05.002

H. Yücel, B. Karasözen *Adaptive Symmetric Interior Penalty Galerkin (SIPG) method for optimal control of convection diffusion equations with control constraints* Optimization, 63, 145-166, 2014
http://dx.doi.org/10.1080/02331934.2013.801474

F. Yılmaz, F., B. Karasözen *An all-at-once approach for the optimal control of the unsteady Burgers equation* Journal of Computational and Applied Mathematics, 259, 771–779, 2014
http://dx.doi.org/10.1016/j.cam.2013.06.036

H. Tor, A. Bagirov, B. Karasözen *Aggregate codifferential method for nonsmooth DC optimization* Journal of Computational and Applied Mathematics 259, 851–866, 2014 http://dx.doi.org/10.1016/j.cam.2013.08.010

T. Akman, H. Yücel , B. Karasözen *A priori error analysis of the upwind symmetric interior penalty Galerkin (SIPG) method for the optimal control problems governed by unsteady convection diffusion equations* Computational Optimization and Applications, 57, 703–729, 2014
http://dx.doi.org/10.1007/s10589-013-9601-4

B. Karasözen, F. Yılmaz *Optimal boundary control of the unsteady Burgers equation with simultaneous space-time discretization* Optimal Control Applications and Methods, 35, 423–434, 2014 http://dx.doi.org/10.1002/oca.2079

Z. Seymen, B. Karasözen *Optimal boundary control for time-dependent diffusion-convection-reaction equations* Int. J. Mathematical Modelling and Numerical Optimisation, 4, 282-300, 2013,
http://dx.doi.org/10.1504/IJMMNO.2013.056543

B. Karasözen, G. Şimşek *Energy preserving integration of bi-Hamiltonian partial differential equations* Applied Mathematics Letters, 26, 1125-1133, 2013 http://dx.doi.org/10.1016/j.aml.2013.06.005

B. Karasözen, G. Şimşek *Energy Preserving Integration of KdV-KdV Systems* TWMS J. App. Eng. Math, 2, 219-227, 2013.

B. Karasözen, V. Tsybulin, A. Nemtsev *Staggered grids for 3D convection of multicomponent fluid in a porous medium* Computers and Mathematics with Applications, 64, 1740–1751, 2012,
http://dx.doi.org/10.1016/j.camwa.2012.02.007

B.Karasözen, A.Trofimova, V. Tsybulin *Natural convection in porous annular domains: mimetic scheme and family of steady states* Journal of Computational Physics, 231, 2995-3005, 2012,
http://dx.doi.org/10.1016/j.jcp.2012.01.004

B. Karasözen, Ö. Erdem *Energy Preserving Methods for Volterra Lattice Equation* TWMS J. App. Eng. Math. 1, 169-179, 2011.

U. Kaplan, M. Türkay, B. Karasözen, L. T. Biegler *Optimization of Supply Chain Systems with Price Elasticity of Demand* Informs Journal on Computing, 23, 557-568, 2011, http://dx.doi.org/10.1287/ijoc.1100.0421

B. Karasözen, F. Yılmaz *Solving Optimal Control Problems for the Unsteady Burgers Equation in COMSOL Multiphysics* Journal of Computational and Applied Mathematics, 235, 4839-4850, 2011,
http://dx.doi.org/10.1016/j.cam.2011.01.002

M. Bagirov, J. Ugon, D. Webb, B. Karasözen *Classification through incremental max-min separability* Pattern Analysis and Applications, 14, 165,174, 2011, http://dx.doi.org/10.1007/s10044-010-0191-9

A. Aydın, B. Karasözen *Lobatto IIIA-IIIB Discretization of the Strongly Coupled Nonlinear Schrödinger Equation* Journal of Computational and Applied Mathematics, 235, 4770-4779, 2011,
http://dx.doi.org/10.1016/j.cam.2010.09.017

A. Aydın, B. Karasözen *Multi-symplectic Box Schemes for the Complex Modified Korteweg-de Vries Equation* Journal of Mathematical Physics, 51, 083511, 2010 http://dx.doi.org/10.1063/1.3456068

U. Kaplan, M. Türkay, L. Biegler, B. Karasözen *Modeling and Simulation of Metabolic Networks for Estimation of Biomass Accumulation Parameters* Discrete Applied Mathematics, 157, 2483-2493, 2009, http://dx.doi.org/10.1016/j.dam.2008.06.048

B. Karasözen, H. Öktem, M. Kahraman *A Model of Angiogenesis by Hybrid Systems with Delay on the Piecewise Constant Part* Journal of Process Control, 19(8), 1257-1264, 2009 http://dx.doi.org/10.1016/j.jprocont.2009.05.003

K. Yapıcı, B. Karasözen, Y. Uludağ, *Finite Volume Simulation of Viscoelastic Laminar Flow in a Lid-driven Cavity* Journal of Non-Newtonian Fluid Mechanics, 164(1-3), 51-65, 2009, http://dx.doi.org/10.1016/j.jnnfm.2009.08.004

A. Aydın, B. Karasözen *Multi-symplectic integration of coupled non-linear Schrödinger system with soliton solutions* International Journal of Computer Mathematics, 86, 864-882, 2009, http://dx.doi.org/10.1080/00207160701713615

A. Aydın, B. Karasözen *Symplectic and multi-symplectic Lobatto methods for the good Boussinesq equation* Journal of Mathematical Physics, 49, 083509, 1-18, 2008 http://dx.doi.org/10.1063/1.2970148

S. Tysbulin, B. Karasözen *Destruction of the family of steady states in the planar problem of Darcy convection* Physics Letters A, 372(35), 5639-5643, 2008, http://dx.doi.org/10.1063/1.297014810.1016/j.physleta.2008.07.006

B. Karasözen, A.D. Nemtsev, V. G. Tsybulin *Staggered grids discretization in three-dimensional Darcy convection* Computer Physics Communications, 178, 885-893, 2008 http://dx.doi.org/10.1016/j.camwa.2012.02.007

K. Yapıcı, B. Karasözen, M. Schaefer, Y. Uludağ *Numerical Investitagion of the Effect of the Rusthon type Turbine: Design Factors on Agitated Tank Flow Characteristics* Chemical Engineering and Processing, Chemical Engineering and Processing 47, 1346-1355, 2008 http://dx.doi.org/10.1016/j.cep.2007.05.002

A. Bagirov, B. Karasözen, M. Sezer *Discrete gradient method: a derivative free method for nonsmooth optimization* Journal of Optimization Theory and Applications, 137, 317-334, 2008, http://dx.doi.org/10.1007/s10957-007-9335-5

Ö. Uğur, B. Karasözen, M. Schaefer, Y. Yapıcı *Derivative Free Optimization Methods for Optimizing Stirrer Configurations* European Journal for Operational Research, 131, 855-863, 2008, http://dx.doi.org/10.1016/j.ejor.2007.01.058

A. Aydın, B. Karasözen *Symplectic and multi-symplectic methods for coupled Nonlinear Schrödinger Equations with periodic solutions* Computer Physics Communications, 177, 566-583, 2007,
http://dx.doi.org/10.1016/j.cpc.2007.05.010

B. Karasözen *Survey of Trust-region Derivative Free Optimization Methods* Journal of Industrial and Management Optimization, 3, 321-334, 2007.

V. G. Tsybulin, B. Karasözen, T. Ergenç *Selection of steady states in planar Darcy convection* Physics Letters A, 356 , pp. 189-194, 2006
http://dx.doi.org/10.1016/j.physleta.2006.03.043

T. Ergenç, B. Karasözen *Poisson integrators for Volterra lattice equations* Applied Numerical Mathematics,56, 879-887, 2006
http://dx.doi.org/10.1016/j.apnum.2005.06.009

M. Schaefer, B. Karasözen, Y. Uludağ, K. Yapıcı, Ö. Uğur *Numerical Method for Optimizing Stirrer Configurations* Computer & Chemical Engineering, 30, 183-190, 2005.

B. Karasözen, V. G. Tsybulin *Cosymmetry preserving finite-difference methods for convection equations in a porous medium* Applied Numerical Mathematics, 55, 69-82, 2005 http://dx.doi.org/10.1016/j.apnum.2004.10.008

B. Karasözen, V. G. Tsybulin *Mimetic discretization of two dimensional Darcy convection* Computer Physics Communications, 167, 207-213, 2005
http://dx.doi.org/10.1016/j.cpc.2004.12.012

B. Karasözen, I. V. Konopleva, B. V. Loginov *Differential-algebraic equations in the theory of invariant manifolds for singular equations* Lobachevskii J. Math., 20, 77-89, 2005

B. Karasözen *Poisson integrators* Mathematical and Computer Modelling, 40, 1225-1244, 2004 http://dx.doi.org/10.1016/j.mcm.2005.01.015

B. Karasözen, B. V. Loginov *Invariant Reduction of Partially Potential Branching Equations and Iterative Methods in the Problem on a Bifurcation Point with a Symmetry* Differential Equations, 40, 380-388, 2004,
http://dx.doi.org/10.1023/B:DIEQ.0000035778.88884.c7

B. Karasözen, V. G. Tsybulin *Cosymmetric families of steady states in Darcy convection and their collision* Physics Letters A, 323, 67-76, 2004
http://dx.doi.org/10.1016/j.physleta.2004.01.053

D. Guidetti, B. Karasözen, S. Piskarev, *Approximation of abstract differential equations* , Journal of Mathematical Sciences, 122, 3013–3054, 2004
http://dx.doi.org/10.1023/B:JOTH.0000029696.94590.94

V. N. Govorukhin, B. Karasözen, V. G. Tsybulin *Dynamics of Numerical Methods for Cosymmetric Ordinary Differential Equations* International Journal of Bifurcation and Chaos, 11, 2339-2358, 2001
http://dx.doi.org/10.1142/S0218127401003504

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