

Assoc. Prof. HAMDULLAH YÜCEL

Personal Information

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Education Information

Doctorate, Middle East Technical University, Institute of Applied Mathematics, Bilimsel Hesaplama (Dr), Turkey 2007 - 2012

Undergraduate, Middle East Technical University, Faculty of Arts and Sciences, Department of Mathematics, Turkey 2002 - 2007

Dissertations

Doctorate, Adaptive discontinuous Galerkin methods for convection dominated optimal control problems, Middle East Technical University, Institute of Applied Mathematics, 2012

Research Areas

Partial Differential Equations, Optimization, Numerical Analysis

Academic Titles / Tasks

Associate Professor, Middle East Technical University, Institute Of Applied Mathematics, Scientific Computing, 2020 - Continues

Assistant Professor, Middle East Technical University, Institute Of Applied Mathematics, Scientific Computing, 2017 - 2020

Lecturer PhD, Max Planck Institute For Dynamics Of Complex Technical Systems, Computational Methods In Systems And Control Theory, 2012 - 2015

Research Assistant, Middle East Technical University, Faculty Of Arts And Sciences, Department Of Mathematics, 2007 - 2012

Research Assistant, Rice University, Department Of Computational And Applied Mathematics, 2010 - 2011

Research Assistant, Technische Universitaet Darmstadt, Department Of Mathematics, 2008 - 2008

Academic and Administrative Experience

Head of Department, Middle East Technical University, Institute Of Applied Mathematics, Scientific Computing, 2020 - Continues

Head of Department, Middle East Technical University, Institute of Applied Mathematics, Scientific Computing, 2017 - 2020

Courses

Introduction to Optimization, Undergraduate, 2019 - 2020
Special Topics: Optimization Methods for Machine Learning, Postgraduate, 2019 - 2020
Programming Techniques in Applied Mathematics II, Postgraduate, 2018 - 2019
Advanced Calculus and Integration, Postgraduate, 2017 - 2018
Special Topics: Discontinuous Galerkin Methods, Postgraduate, 2017 - 2018
Special Topics: Advances topics in Finite Elements, Postgraduate, 2015 - 2016

Advising Theses

Manguoğlu M., Yücel H., REEVALUATING SPECTRAL PARTITIONING FOR UNSYMMETRIC MATRICES, Postgraduate, E.OKTAY(Student), 2020
Tuncer İ. H. , Yücel H., Development of a Discrete Adjoint-Based Aerodynamic Shape optimization for Natural Laminar Flows, Doctorate, H.Kaya(Student), 2020
UĞUR Ö., YÜCEL H., Numerical studies of korteweg-de vries equation with random input data, Postgraduate, M.ALP(Student), 2018
KARASÖZEN B., YÜCEL H., Multigrid methods for optimal control problems governed by convection-diffusion equations, Postgraduate, Ö.MURAT(Student), 2015

Designed Lessons

Yücel H., Special Topics: Optimization Methods for Machine Learning , Postgraduate, 2019 - 2020
Yücel H., Special Topics: Discontinuous Galerkin Methods, Postgraduate, 2017 - 2018

Articles Published in Journals That Entered SCI, SSCI and AHCI Indexes

- I. **Intra- and inter-cluster link scheduling in CUPS-based ad hoc networks**
Eksert M. L. , Yücel H., Onur E.
Computer Networks, vol.185, 2021 (Journal Indexed in SCI)
- II. **Goal-oriented a posteriori error estimation for Dirichlet boundary control problems**
YÜCEL H.
JOURNAL OF COMPUTATIONAL AND APPLIED MATHEMATICS, vol.381, 2021 (Journal Indexed in SCI)
- III. **Energy Stable Discontinuous Galerkin Finite Element Method for the Allen-Cahn Equation**
KARASÖZEN B., Uzunca M., Sariaydin-Filibelioglu A., YÜCEL H.
INTERNATIONAL JOURNAL OF COMPUTATIONAL METHODS, vol.15, no.3, 2018 (Journal Indexed in SCI)
- IV. **ADAPTIVE DISCONTINUOUS GALERKIN APPROXIMATION OF OPTIMAL CONTROL PROBLEMS GOVERNED BY TRANSIENT CONVECTION-DIFFUSION EQUATIONS**
YÜCEL H., Stoll M., Benner P.
ELECTRONIC TRANSACTIONS ON NUMERICAL ANALYSIS, vol.48, pp.407-434, 2018 (Journal Indexed in SCI)
- V. **Optimal control of convective FitzHugh-Nagumo equation**
Uzunca M., Kucukseyhan T., YÜCEL H., KARASÖZEN B.
COMPUTERS & MATHEMATICS WITH APPLICATIONS, vol.73, no.9, pp.2151-2169, 2017 (Journal Indexed in SCI)
- VI. **ADAPTIVE SYMMETRIC INTERIOR PENALTY GALERKIN METHOD FOR BOUNDARY CONTROL PROBLEMS**
BENNER P., Yucel H.
SIAM JOURNAL ON NUMERICAL ANALYSIS, vol.55, no.2, pp.1101-1133, 2017 (Journal Indexed in SCI)
- VII. **A discontinuous Galerkin method for optimal control problems governed by a system of convection-diffusion PDEs with nonlinear reaction terms**
Yucel H., STOLL M., BENNER P.

- COMPUTERS & MATHEMATICS WITH APPLICATIONS, vol.70, no.10, pp.2414-2431, 2015 (Journal Indexed in SCI)
- VIII. **Adaptive discontinuous Galerkin methods for state constrained optimal control problems governed by convection diffusion equations**
Yuecel H., BENNER P.
COMPUTATIONAL OPTIMIZATION AND APPLICATIONS, vol.62, no.1, pp.291-321, 2015 (Journal Indexed in SCI)
- IX. **Distributed optimal control of time-dependent diffusion-convection-reaction equations using space-time discretization**
Seymen Z. K. , YÜCEL H., KARASÖZEN B.
JOURNAL OF COMPUTATIONAL AND APPLIED MATHEMATICS, vol.261, pp.146-157, 2014 (Journal Indexed in SCI)
- X. **A priori error analysis of the upwind symmetric interior penalty Galerkin (SIPG) method for the optimal control problems governed by unsteady convection diffusion equations**
AKMAN T., Yucel H., KARASÖZEN B.
COMPUTATIONAL OPTIMIZATION AND APPLICATIONS, vol.57, no.3, pp.703-729, 2014 (Journal Indexed in SCI)
- XI. **Adaptive Symmetric Interior Penalty Galerkin (SIPG) method for optimal control of convection diffusion equations with control constraints**
Yucel H., Karasozen B.
OPTIMIZATION, vol.63, no.1, pp.145-166, 2014 (Journal Indexed in SCI)
- XII. **Discontinuous Galerkin finite element methods with shock-capturing for nonlinear convection dominated models**
Yucel H., STOLL M., BENNER P.
COMPUTERS & CHEMICAL ENGINEERING, vol.58, pp.278-287, 2013 (Journal Indexed in SCI)

Articles Published in Other Journals

- I. **Symmetric interior penalty Galerkin method for fractional-in-space phase-field equations**
Stoll M., YÜCEL H.
AIMS MATHEMATICS, vol.3, no.1, pp.66-95, 2018 (Journal Indexed in ESCI)
- II. **Distributed optimal control problems governed by coupled convection dominated PDEs with control constraints**
Yücel H., Benner P.
Lecture Notes in Computational Science and Engineering, vol.103, pp.469-478, 2015 (Refereed Journals of Other Institutions)

Refereed Congress / Symposium Publications in Proceedings

- I. **Stochastic Discontinuous Galerkin Methods with Low-Rank Solvers for Convection Diffusion Equations**
Çiloğlu P., Yücel H.
Stochastic Discontinuous Galerkin Methods with Low-Rank Solvers for Convection Diffusion Equations, Chemnitz, Germany, 6 - 08 September 2021, pp.1
- II. **Residual based a posteriori error estimation for Dirichlet boundary control problems**
Yücel H.
FGS'2019 - 19th French-German-Swiss conference on Optimization, Nice, France, 17 - 20 September 2019, vol.71, pp.185-195
- III. **Goal-oriented a posteriori error estimation for Dirichlet boundary control problems**
Yücel H.
19th French-German-Swiss conference on Optimization (FGS'2019) , Nice, France, 17 - 20 September 2019, pp.88
- IV. **Discontinuous Galerkin Methods for Convection Diffusion Equations with Random Coefficients**
Çiloğlu P., Yücel H.

BEYOND 2019: Computational Science and Engineering Conference, Ankara, Turkey, 9 - 11 September 2019

- V. **Discontinuous Galerkin Methods for Unsteady Convection Diffusion Equation with Random Coefficients**
Çiloğlu P., Yücel H.
BEYOND: Workshop on Computational Science and Engineering, Ankara, Turkey, 20 - 21 October 2018
- VI. **A local discontinuous Galerkin method for Dirichlet boundary control problems**
Yücel H.
BEYOND: Workshop on Computational Science and Engineering, Ankara, Turkey, 20 - 21 October 2018, pp.38
- VII. **Unsteady Convection Diffusion Equation with Random Input Data**
Çiloğlu P., Yücel H.
Chemnitz FE Symposium 2018, Chemnitz, Germany, 24 - 26 September 2018
- VIII. **Goal-Oriented a Posteriori Error Estimation for Dirichlet Boundary Control Problems**
YÜCEL H.
5th European Conference on Computational Optimization (EUCCO 2018), 10 - 12 September 2018
- IX. **A Local Discontinuous Galerkin Method for Dirichlet Boundary Control Problems**
YÜCEL H.
18th French - German - Italian Conference on Optimization, 25 - 28 September 2017
- X. **Numerical Simulation of MHD Duct flow problems using BEM and DGFEM approaches**
Yücel H., BOZKAYA C., TEZER M.
International Conference on Boundary Element and Meshless Techniques XVII, Ankara, Turkey, 11 - 13 July 2016, pp.167-173
- XI. **Space Time Discontinuous Galerkin Finite Element Approximation of Optimal Control Problems**
YÜCEL H., HİNZE M.
Enumath 2015, Ankara, Turkey, 14 - 18 September 2015
- XII. **Fractional Allen Cahn Equations**
YÜCEL H., STOLL M., BENNER P.
26th Biennial Numerical Analysis Conference, Glasgow, United Kingdom, 23 - 26 June 2015
- XIII. **Adaptive Symmetric Interior Penalty Galerkin Method for Boundary Control Problems**
YÜCEL H., Stoll M., Benner P.
Workshop on Numerical Methods for Optimal Control and Inverse Problems, Munich, Germany, 9 - 11 March 2015
- XIV. **Unsteady optimal control problems arising from chemical processes**
YÜCEL H., STOLL M., BENNER P.
ESCO 2014, 4th European Seminar on Computing, Pilsen, Czech Republic, 15 - 20 June 2014
- XV. **Adaptive discontinuous Galerkin approximation of optimal control problems governed by transient convection diffusion equations**
YÜCEL H., STOLL M., BENNER P.
APMOD Conference 2014, Coventry, United Kingdom, 9 - 11 April 2014
- XVI. **Distributed Optimal Control Problems Governed by Coupled Convection Dominated PDEs with Control Constraints**
YÜCEL H., BENNER P.
ENUMATH 2013, Lausanne, Switzerland, 26 - 30 August 2013, pp.469-478
- XVII. **Adaptive discontinuous Galerkin DG methods for state constrained optimal control problems governed by convection dominated equations**
YÜCEL H., Stoll M., Benner P.
European Conference on Computational Optimization Chemnitz 2013, Chemnitz, Germany, 17 - 19 July 2013
- XVIII. **Optimal control problems governed by a system of convection diffusion PDEs with nonlinear reaction terms**
YÜCEL H., STOLL M., BENNER P.
Workshop on Numerical Methods for Optimal Control and Inverse Problems, Munich, Germany, 11 - 13 March 2013
- XIX. **Optimal Control of Diffusion Convection Reaction Equations Using Upwind Symmetric Interior**

Penalty Galerkin SIPG Method

KARASÖZEN B., YÜCEL H.

4th International Interdisciplinary Chaos Symposium, Antalya, Turkey, 29 April - 01 May 2012, pp.83-94

XX. Distributed Optimal Control of Diffusion Convection Reaction Equations Using Discontinuous Galerkin Methods

YÜCEL H., HEIKENSCHLOSS M., KARASÖZEN B.

ENUMATH 2011, Leicester, United Kingdom, 5 - 09 September 2011, pp.389-397

XXI. Distributed optimal control of unsteady Burgers and convection diffusion reaction equations using COMSOL Multiphysics

YÜCEL H., KARASÖZEN B., YILMAZ F. N., KANAR Z.

Computational techniques for optimization problems subject to time-dependent PDEs, Brighton, United Kingdom, 14 - 16 December 2009

Supported Projects

Yücel H., TUBITAK Project, Petrol Ve Gaz Rezervuar Problemleri İçin Sayısal Çalışmalar, 2019 - 2021

YÜCEL H., ÇİLOĞLU P., ÜRETEN M. A., ÇİLOĞLU P., Project Supported by Higher Education Institutions, Rastgele Girdi Verili Korteweg-de Vries (KdV) için Sayısal Çözüm Yöntemleri, 2018 - 2019

YÜCEL H., MÜLAYİM G., Project Supported by Higher Education Institutions, Çapraz difüzyon sistemlerinde model indirgeme yöntemlerinin uygulamaları, 2017 - 2017

Yücel H., Karasözen B., Project Supported by Higher Education Institutions, Taşınım Ağırlıklı Eniyilemeli Kontrol Problemleri için Çoklu Ağ Yöntemleri, 2014 - 2014

Yücel H., Karasözen B., Project Supported by Higher Education Institutions, Adveksiyon Ağırlıklı Eniyilemeli Kontrol Problemlerinin Model İndirgeme Yöntemleriyle Çözümü, 2012 - 2012

Yücel H., Karasözen B., Uludağ Y., Project Supported by Higher Education Institutions, Çok Katmanlı Eniyileme Problemlerinin Türev Gerektirmeyen Yöntemlerle Çözümü, 2009 - 2009

Scientific Refereeing

Journal of Applied Analysis, Other Indexed Journal, September 2020

Numerical Algebra, Control and Optimization, Journal Indexed in ESCI, September 2020

ADVANCES IN COMPUTATIONAL MATHEMATICS, SCI Journal, July 2020

APPLIED NUMERICAL MATHEMATICS, SCI Journal, July 2020

COMMUNICATIONS IN NONLINEAR SCIENCE AND NUMERICAL SIMULATION, SCI Journal, July 2020

JOURNAL OF COMPUTATIONAL AND APPLIED MATHEMATICS, SCI Journal, May 2020

Fundamental Journal of Mathematics and Applications, Other Indexed Journal, April 2020

Tasks In Event Organizations

Yücel H., BEYOND 2019: Computational Science and Engineering Conference, Workshop Organization, Ankara, Turkey, Eylül 2019

Yücel H., BEYOND: Workshop on Computational Science and Engineering, Workshop Organization, Ankara, Turkey, Ekim 2018

Citations

Total Citations (WOS):71

h-index (WOS):7