MOHAMMAD ZAKERZADEH

SERENA Team
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RESEARCH INTERESTS

A Posteriori Error Estimation, Analysis and Numerical Analysis of PDEs, Finite Element Methods, Discontinuous Galerkin Methods, Conservation Laws

EDUCATION/Work

Postdoctoral Researcher Since Oct. 2017
SERENA Team, INRIA, Paris, France
Topic: *A Posteriori Error Estimation for Hyperbolic Problems*
Supervisors: Martin Vohralik, Alexandre Ern

Dr. rer. nat in Mathematics Jan. 2014 – May. 2017
(Exam Date: Sept. 20, 2017 - with highest honor, summa cum laude)
Aachen Institute for Advanced Study in Computational Engineering Science (AICES)
RWTH Aachen, Aachen, Germany
Thesis: *Stable and Convergent Class of Discontinuous Galerkin Schemes for Conservation Laws*
Advisor: Georg May, **Coadvisor:** Wolfgang Dahmen
Thesis committee: Georg May, Sebastian Noelle, Eitan Tadmor, Manuel Torrilhon, Arnold Reusken

Master of Science in Simulation Science GPA: 1.3 (Sehr Gut) 2011 – 2013
German Research School for Simulation Sciences (GRS), RWTH Aachen, Aachen, Germany
Thesis: *Analysis of a Shock Capturing Discontinuous Galerkin Method for Hyperbolic Systems of Conservation Laws*
Advisor: Georg May

Bachelor of Science, GPA: 18.82/20 2006 – 2010
Mechanical Engineering Department Sharif University of Technology, Tehran, Iran
Thesis: *Hydrodynamic Investigation of Rotating Disk Contactor Columns using Coupled CFD-PBM*
Advisor: Mehrdad T. Manzari

HONORS & AWARDS

- *Offered Oberwolfach Leibniz Graduate (OWLG) grant* 2016
- *Offered student scholarship of WONAPDE16, Concepción, Chile* 2014
- *Ranked 4^{th} (of 140) in Mechanical Engineering, Sharif Univ. of Tech., Iran* 2010
- *Directly admitted to the Master's program as exceptional talent*, Sharif Univ. of Tech., Iran 2009
- *Ranked 42^{nd} among ca. 350,000 participants in the nationwide university entrance exam*, Iran 2006

PUBLICATIONS

Journal publications:

1. G. May, **M.Z.**, On the Convergence of Space-Time Discontinuous Galerkin Schemes for Scalar Conservation Laws, *SIAM J. Numer. Anal.*, 54.4, 2016.
2. **M.Z.**, G. May, On the Convergence of a Shock Capturing Discontinuous Galerkin Method for Nonlinear Hyperbolic Systems of Conservation Laws, *SIAM J. Numer. Anal.*, 54.2, 2016.

Conference publications:

3. **M.Z.**, G. May, Entropy Stable Discontinuous Galerkin Scheme for the Compressible Navier–Stokes Equations, AIAA Paper, *55th AIAA Aerospace Sciences Meeting*, Grapevine, Texas, 2017.
4. **M.Z.**, G. May, High-Order Entropy Stable Discontinuous Galerkin Schemes in a Space-Time Computational Framework, AIAA Paper, *46th AIAA Fluid Dynamics Conference*, Washington, D.C., 2016.
5. **M.Z.**, G. May, Analysis of Space-Time Discontinuous Galerkin Methods for Hyperbolic Conservation Laws, *Workshop on Space-Time Methods for Time-dependent Partial Differential Equations*, Oberwolfach Report, No. 15, 2017.
6. **M.Z.**, G. May, Class of Space-Time Entropy Stable Discontinuous Galerkin Schemes for Systems of Convection-Diffusion, *to appear in Springer Proceedings in Mathematics and Statistics of the International Conference on Hyperbolic Problems: Theory, Numeric and Applications in Aachen*, 2017

Preprints:

7. **M.Z.**, G. May, Analysis of Mixed Discontinuous Galerkin Formulation of Quasilinear Elliptic Problems, submitted (2017)
8. **M.Z.**, G. May, Entropy Stable Discontinuous Galerkin Scheme for the Compressible Navier–Stokes Equations, submitted (2018)

RESEARCH EXPERIENCE

Research Stay at TU Wien — *Mar. 2016 (1 week)*
Institute for Analysis and Scientific Computing Seminar

Seminar: Current Topics in Numerical Analysis — Fall 2012
Supervisor: Prof. Wolfgang Dahmen
Topic: *Robust DPG Method for Convection-Dominated Diffusion Problems*

Research assistant at Institut für Geometrie und Praktische Mathematik — Apr. 2012 – Apr. 2013
RWTH Aachen, Supervisor: Prof. S. Müller
Topic: *C++ implementation of Tecplot output for an unstructured FV code, C++ implementation of different limiters for a high order RKDG code*

TEACHING EXPERIENCE

Fast Iterative Solvers, Instructor: Prof. G. May	Summer 2015 & 2016
Numerical Methods for PDEs, Instructor: Prof. G. May	Fall 2014 & 2015
Numerical Computing, Instructor: Dr. N. Bagherpour	Spring 2011
Introduction to CFD, Instructor: Prof. M. T. Manzari	Spring 2010 & 2011

PROGRAMMING SKILLS

Matlab, MPI, OpenMP, C, C++

MISCELLANEOUS ACTIVITIES

Reviewer in scientific journals: CMS, JOTA	
Member of the Society for Industrial and Applied Mathematics (SIAM)	since 2012
Scientific committee member of YIC GACM Conference, Aachen, Germany	2015
Founding member of SIAM Student Chapter Aachen	2014