

Workshop Numerical Analysis for Singularly Perturbed Problems

(dedicated to the 60th birthday of Martin Stynes)

Dresden, November 16 - 18, 2011

Scientific Board

Prof. Dr. Hans-Görg Roos, TU Dresden

Prof. Dr. Torsten Linß, TU Dresden

Prof. Dr. Lutz Tobiska, Universität Magdeburg

Talks & Slides

Time	Referee	Institute	Title
Wednesday			
14:00 – 14:30	Eugene O'Riordan	Dublin City University	A return visit to Petrov-Galerkin methods and discretized Green's functions for singularly perturbed problems
14:30 – 15:00	Torsten Linß	Fakultät für Mathematik, Universität Duisburg-Essen	A posteriori error estimators for higher-order methods applied to 1D reaction-diffusion problems
15:00 – 15:30	Grigorii Ivanovich Shishkin	Institute of Mathematics and Mechanics, Russian Academy of Sciences	Solution decomposition method as an approach for constructing ε -uniformly convergent difference schemes, which are stable to perturbation in the data, for singularly perturbed parabolic convection-diffusion equations
15:30 – 16:00	Coffee Break		
16:00 – 16:30	Carmelo Clavero	University of Zaragoza	Some results for singularly perturbed problems with discontinuous data and interior layers: uniform convergence on special meshes

16:30 – 17:00	Jason Quinn	Dublin City University	Linear and Nonlinear Singularly Perturbed Problems with Interior Layers
17:00 – 17:20	Helena Zarin	University of Novi Sad	Quadratic C^1 -spline collocation for reaction-diffusion problems
17:20 – 17:40	Lars Ludwig	Institut für Numerik, TU-Dresden	Superconvergence for convection-diffusion problems with low regularity
17:40 – 18:00	Sebastian Franz	Institut für Numerik, TU-Dresden	Convergence results in balanced norms for singularly perturbed problems
Thursday			
9:00 – 9:30	Jens Markus Melenk	Institut fuer Analysis und Scientific Computing, TU Wien	Remarks on asymptotic expansions for singularly perturbed second order ODEs with multiple scales
9:30 – 10:00	Christos Xenophontos	The University of Cyprus	Analytic regularity and finite element approximation of coupled systems of singularly perturbed reaction-diffusion equations
10:00 – 10:30	Hans-Görg Roos	Institut für Numerik, TU-Dresden	Systems of singularly perturbed differential equations
10:30 – 11:00	Coffee Break		
11:00 – 11:30	Natalia Kopteva	University of Limerick	A posteriori error estimates for classical and singularly perturbed parabolic equations
11:30 – 12:00	Volker John	WIAS Berlin, Mohrenstrasse 39, 10117 Berlin	On Recent Experience With Discretizations of Convection-Diffusion Equations
12:00 – 12:30	Niall Madden	NUI Galway	Linear Solvers for Singularly Perturbed Problems

12:30 – 14:00	Lunch		
14:00 – 14:30	Michal Křížek	Institute of Mathematics, Academy of Sciences of the Czech Republic	On angle conditions in the finite element method
14:30 – 15:00	Thomas Apel	Universität der Bundeswehr München	Three remarks on anisotropic finite elements
15:00 – 15:30	Rene Schneider	Institut für Numerik, TU-Dresden	With edge based refinement towards anisotropic adaptive refinement in FEM
15:30 – 16:00	Coffee Break		
16:00 – 16:30	Lidia Pavlovna Shishkina	Institute of Mathematics and Mechanics, Russian Academy of Sciences	Grid method for solving a Stefan-type problem
16:30 – 17:00	José Luis Gracia	University of Zaragoza	On the global convergence of a singularly perturbed parabolic problem of reaction diffusion type with a discontinuous initial condition
17:00 – 17:30	Friedhelm Schieweck	Institut für Analysis und Numerik, Otto-von-Guericke Universität Magdeburg	A new LPS method with shock capturing and diagonal mass matrix for solving non-stationary transport dominated problems
19:00	Conference Dinner		
19:00	Lutz Tobiska	Institute für Analysis und Numerik Otto-von-Guericke	Restless singularly perturbed: Martin Stynes

		Universität Magdeburg	
Friday			
9:00 – 9:30	Miloslav Feistauer	Charles University Prague, Faculty of Mathematics and Physics	Error analysis of the space-time DGFEM for nonstationary nonlinear convection- diffusion problems
9:30 – 10:00	Gert Lube	Institute for Numerical and Applied Mathematics, Georg-August University Goettingen	Some remarks on grad-div stabilization of incompressible flow simulations.
10:00 – 10:30	Malte Braack	University of Kiel	Linear-quadratic optimal control for the Oseen equations with stabilized finite elements
10:30 – 11:00	Coffee Break		
11:00 – 11:30	Ricardo Duran	University of Buenos Aires	Improved Poincaré and other classic inequalities: a new approach to prove them and some generalizations
11:30 – 12:00	Petr Knobloch	Charles University, Faculty of Mathematics and Physics, Department of Numerical Mathematics	A posteriori computation of parameters in stabilized methods for convection- diffusion problems
12:00 – 12:30	Martin Stynes	National University of Ireland, Cork	Two-scale combination sparse grid method for reaction-diffusion problems