Programme

Wednesday, August 26	MIT Building, Room MA121
12:00 Lunch	Hjortron @ Universum

13:10 **Welcome to BIT Circus 2015**
Bo Kågström, Umeå University, Chair of the Organizing Committee
Olavi Nevanlinna, Aalto University, Chair of the BIT Foundation Board

13:20 Keynote presentation (substituting Lars Eldén):
Computability Concepts in Spectral Computations
Olavi Nevanlinna, Aalto University

14:00 *Session 1 - Chairperson:* Bo Kågström
Uniformly best wavenumber approximations
Viktor Linders, Linköping University

A Family of Runge-Kutta Starters for Discontinuous ODEs
Fatemeh Mohammadi, Lund University

Stabilized Nitsche Cut-Elements for Wave propagation
Simon Sticko, Uppsala University

Coupled Sylvester-Type Matrix Equations and Block Diagonalization
Andrii Dmytryshyn, Umeå University

15.15 Coffee break	

15:45 *Session 2 - Chairperson:* Olavi Nevanlinna
Schur complement matrix and its (elementwise) approximation: A spectral analysis based on GLT sequences
Ali Dorostkar, Uppsala University

Matrix-Free Finite Element Computations on Graphics Processors
Karl Ljungkvist, Uppsala University

A multibody dynamics model of bacterial biofilms
Martin Servin, Umeå University

Convergency of Leap-frog Discontinuous Galerkin Methods for Solving Time-Domain Maxwell's Equations with Anisotropic Materials
Maryam Khaksar Ghalati, Coimbra University

17:00	***Poster Blitz and Session – Chairperson:*** Eddie Wadbro	
	Starts with a brief advertisement of all posters in plenum	

P1: High order FEM computation of resonances in nanostructures
Juan Carlos Araujo-Cabarcas, Umeå University

P2: A Vertex-centered Discontinuous Galerkin Method
Sven-Erik Ekström, Uppsala University

P3:NUMA-Aware Blocked Hessenberg Reduction Using Parallel Cache Assignment
Mahmoud Eljammaly, Umeå University

P4: Full system Co-simulation for analysis and design of vehicular mechatronic systems
Mats Johansson Umeå University

P5: StratiGraph and the Matrix Canonical Structure Toolbox
Stefan Johansson, Umeå University

P6: Molecular Structure Reconstruction From Single-Particle Imaging Using GPUs
Jing Liu, Uppsala University

P7: Spectral properties of non-selfadjoint rational operator functions and applications to wave propagation in photonic crystals
Axel Torshage, Umeå University

P8: Accelerated granular matter simulation
Da Wang Umeå University

P9: Convergence of summation-by-parts finite difference methods for the wave equation
Siyang Wang, Uppsala University

18:20	Transportation (bus/walk) to Scandic Plaza	
19:00	Dinner and Discussions	Scandic Plaza

Thursday, August 27   MIT Building, Room MA121

08:10	Bus from Scandic Plaza to Universum	

08:30	*Session 3 – Chairperson:* David Cohen	
	Convergence analyses of the Peaceman-Rachford and Douglas-Rachford Schemes for Semilinear Evolution Equations	*Erik Henningson*, Lund University
	Producing a Menu of Stationary Solutions to the Axially-Symmetric Einstein-Vlasov System	*Ellery Ames*, Chalmers
	A New High Order Mimetic Arakawa-Like Jacobian Differential Operator for the Incompressible Vorticity Equation	*Cristina La Cognata*, Linköping University
	An exponential integrator for polynomially parameterized linear ODEs	*Antti Koskela*, KTH
	Stochastic diffusion simulations under molecular crowding	*Lina Meinecke*, Uppsala University

10:00	Coffee break	

	Session 4– Chairperson: Lars Karlsson	
	Numerical evaluation of the roots of orthogonal polynomials	*Diego Ruiz Antolín*, Universidad de Cantabria
	Lagrangian-Eulerian based immersed boundary method for large scale simulations	*Rahul Bale*, RIKEN, Japan
	The waveguide eigenvalue problem and the tensor infinite Arnoldi method	*Giampaolo Mele*, KTH
	Preconditioning techniques for discrete PDE-constrained optimization problems	*Maya Neytcheva*, Uppsala University

11:50	Lunch	Björken

13:15	*Session 5 – Chairperson:* Eddie Wadbro	
	Singularity of the discrete Laplacian operator	*Andrea Alessandro Ruggiu*, Linköping University
	Megapixel Topology Optimization using Quasi-Arithmetic Mean Based Filters	*Linus Hägg*, Umeå University
	Parameterless stopping criteria for density matrix expansions	*Anastasia Kruchinina*, Uppsala University
	Towards large-scale multiphysics simulations on the K computer	*Niclas Jansson*, RIKEN, Japan
	Robust Boundary Conditions for Stochastic Incompletely Parabolic Systems of Equations	*Markus Wahlsten*, Linköping University
14:45	Coffee break	
15:15	*Session 6– Chairperson:* Bo Kågström	
	Coupling Requirements for Well Posed and Stable Multi-physics Problems	*Fatemeh Ghasemi Zinatabadi*, Linköping University
	Element-free elastoplastic solid for nonsmooth multidomain dynamics	*John Nordberg*, Umeå University
	Uncertainty Quantification for High Frequency Waves	*Gabriela Malenova*, KTH
	A multilevel subset simulation for estimation of rare events	*Daniel Elfverson*, Uppsala University
16:30	**Closing words** *Lars Eldén, BIT Editor in Chief* *Bo Kågström, Chair of the Organizing Committee*	