ENUMATH 2017, Voss, Norway, 25th - 29th September 2017 – Detailed program
Monday 25th September (afternoon)

13:45–14:00	Opening remarks by **Florin Radu, Helge Dahle and Miloslav Feistauer** at **Kulturhus**					
14:00–14:45	**Kulturhus** *Chair:* **Miloslav Feistauer**	**Antonella Zanna** – Mathematics & Medicine - how mathematics, modelling and simulation can lead to better diagnosis and treatment				
14:45–15:30		**Sorin Pop** – Numerical Methods for porous media flows				
15:30–15:50	Coffee break at **Hotel Fleischers**					
Parallel session	**Kulturhus** **MS26** Approximation of multi-scale nonlinear PDEs	**Fleischers Osa** **MS16** Mixed and nonsmooth methods in numerical solid mechanics	**Fleischers Sivle** **MS24** Structure preserving discretizations and high order finite elements for differential forms	**Fleischers Kvitanosi** **CT1** Finite element techniques	**Fleischers Bergslien** **MS23** Numerical Methods in Biophysics	**Fleischers Tarald** **MS13** Monge-Ampère solvers with applications to illumination optics
Chair	**Lakkis, Lind, Muntean, Venkataraman**	**Bertrand, Sander**	**Alonso, Christiansen, Rapetti, Winther**	**Keilegavlen**	**Javierre, Vermolen**	**ten Thije Boonkamp, IJzerman**
15:50–16:15	**Peter Binev** Optimal Recovery from Data in a Multispace Setup	**Jad Dabaghi** Adaptive inexact semi–smooth Newton methods for a contact between two membranes	**Richard Falk** A New Approach to Numerical Computation of the Hausdorff Dimension of Invariant Sets of Iterated Function Systems	**Patrick Henning** Finite Element Approximations of Non-linear Schrödinger Equations	**Etelvina Javierre** A poroelastic growth model to study fluid-mechano-chemical interactions in avascular tumors	**Jan ten Thije Boonkkamp** The Monge-Ampère equation for freeform optics
16:15–16:40	**Charlie Dounla Lontsi** High order Rush-Larsen time-stepping methods for cardiac electrophysiology	**Bernhard Kober** Strong vs. Weak Symmetry in Stress-Based Mixed Finite Element Methods for Linear Elasticity	**Andrew Gillette** Decompositions of (Trimmed) Serendipity Spaces	**Robert Schorr** A non-symmetric finite element and boundary element coupling method for a parabolic-elliptic interface problem	**Chandrasekhar Venkataraman** Modelling and simulation of intratumor phenotypic heterogeneity	**Jean-David Benamou** Optimal Transportation Solvers for FreeForm Optics
16:40–17:05	**Anne Reinarz** Multiscale modelling of aerospace composites with lamination defects	**Marcel Moldenhauer** Stress reconstruction for the nonconforming P2 finite element method and a posteriori error estimation	**Kaibo Hu** Well-Conditioned Frames for Finite Element Methods	**Piotr Swierczynski** Higher order energy-correction method for parabolic problems	**Anotida Madzvamuse** A robust and efficient adaptive multigrid solver for the optimal control of phase field formulations of geometric evolution laws	**Elisa Friebel** Galerkin Methods for the Monge–Ampère: Equation arising in Lens Design

Monday 25th September (afternoon) (cont'd)

Parallel session	**MS26** Approximation of multi-scale nonlinear PDEs	**MS16** Mixed and nonsmooth methods in numerical solid mechanics	**MS24** Structure preserving discretizations and high order finite elements for differential forms	**CT1** Finite element techniques	**MS23** Numerical Methods in Biophysics	**MS13** Monge-Ampère solvers with applications to illumination optics
Chair	**Lakkis, Lind, Muntean, Venkataraman**	**Bertrand, Sander**	**Alonso, Christiansen, Rapetti, Winther**	**Keilegavlen**	**Javierre, Vermolen**	**ten Thije Boonkamp, IJzerman**
17:05–17:30	**Mariya Ptashnyk** Homogenization of multiscale models for plant tissue biomechanics	**Ingo Münch** Evolution of load-bearing structures with phase field modeling	**Francesca Rapetti** The discrete relations between fields and potentials	**Steffen Münzenmaier** Locally Scaled Least Squares Finite Element Methods for the Transport Equation	**Fred Vermolen** Mathematical Models for the Simulation of Burns Injuries	**Omar Lakkis** Galerkin methods for the Monge–Ampère equation with transport boundary conditions
17:30–17:55	**Tristan Pryer** Variational problems in L^∞ and applications		**Claire Scheid** A structure preserving numerical discretization framework for the Maxwell Klein Gordon equations in 2D.	**Andreas Hahn** Stabilized FEM for a Coupled Bulk-Surface Transport Problem		**Nitin K. Yadav** A Least-Squares Method for the Design of Optical Systems and the Relation with Optimal Mass Transport
20:00	Icebreaker at **Kulturhus**					

Tuesday 26th September (morning)

Parallel session	**Kulturhus** **MS26** Approximation of multi-scale nonlinear PDEs	**Fleischers Osa** **MS9** Discretizations and solvers for multi-physics problems	**Fleischers Sivle** **MS24** Structure preserving discretizations and high order finite elements for differential forms	**Fleischers Kvitanosi** **MS4** Polyhedral methods and applications	**Fleischers Bergslien** **MS10** Reduced order models for time-dependent problems	**Fleischers Tarald** **MS18** Noncommutative stochastic differential equations: Analysis and simulation
Chair	**Lakkis, Lind, Muntean, Venkataraman**	**Gaspar, Rodrigo**	**Alonso, Christiansen, Rapetti, Winther**	**Antonietti, Berrone, Di Pietro, Verani**	**Billaud-Friess, Ehrlacher, Ern**	**Ebrahimi-Fard, Malham, Wiese**
08:30–08:55	**Martin Lind** Two-scale pressure model: weak solvability	**Massimiliano Ferronato** A stabilized finite volume method for poroelasticity: Numerical challenges and computational efficiency	**Roberta Tittarelli** A residual a posteriori error estimator for the Hybrid High-Order Method	**Alexandre Ern** A Multi-scale Hybrid High-Order method	**Mario Ohlberger** The localized reduced basis method for time dependent problems	**Anne Kværnø** Stochastic B–series and order conditions for exponential integrators
08:55–09:20	**Omar Richardson** Two-scale pressure model: finite element approximation	**Ludmil Zikatanov** Stabilization techniques for finite element discretizations of Biot's model in poroelasticity	**Wietse Boon** Mixed-Dimensional Approach to Flows in Fractured, Deformable Media	**Michele Botti** A Hybrid High-Order method for nonlinear elasticity	**Gabriele Santin** Greedy kernel methods for accelerating implicit integrators for parametric ODEs	**Charles Curry** Noncommutative stochastic exponentials: analytic and geometric perspectives
09:20–09:45	**Arthur Vromans** Homogenization of coupled PDEs describing chemical corrosion of sewer systems in the presence of mechanical stresses	**Xiaozhe Hu** Robust Preconditioners for the Biot's Model	**Ashish Bhatt** Structure-preserving ERK Methods for Non-autonomous DEs	**Pierre Cantin** A compact-stencil scheme on polyhedral meshes for transport equations	**Silke Glas** Space-time and reduced basis methods	**Kurusch Ebrahimi-Fard** Non-commutative stochastic exponentials from a shuffle algebra viewpoint
09:45–10:10	**Sergey Alyaev** A robust control volume heterogeneous multiscale method for non-linear flows in porous media	**Jakub Both** Accelerated iterative schemes for poromechanics	**Miroslav Kolář** Numerical Solution of Area-Preserving Geodesic Curvature Flow	**Florent Chave** A Hybrid High-Order method for Darcy flows in fractured porous media	**Stefan Volkwein** POD-based error control for reduced-order multiobjective PDE-constrained optimization	**Thomas Cass** A Stratonovich-to-Skorohod conversion formula for integrals with respect to Gaussian rough paths
10:10–10:30	Coffee break at **Hotel Fleischers**					
10:30–11:15	**Kulturhus**	**Vivette Girault** – Some numerical simulation of hydraulic fractures in poro-elastic media				
11:15–12:00	*Chair:* **Kundan Kumar**	**Anthony Patera** – Model Order Reduction for Component-to-System Analysis of Parametrized Partial Differential Equations				
12:00–13:30	Lunch at **Hotel Fleischers**					

Tuesday 26th September (midday)

Parallel session	**Kulturhus** **MS8** New frontiers in domain decomposition methods: Optimal control, model reduction, and heterogeneous problems	**Fleischers Osa** **MS27** Numerical methods for simulating processes in porous media	**Fleischers Sivle** **MS6** Recent Advances in Space-Time Galerkin Methods and Applications	**Fleischers Kvitanosi** **MS29** Recent advances on polyhedral discretizations	**Fleischers Bergslien** **MS10** Reduced order models for time-dependent problems	**Fleischers Tarald** **MS15** Uncertainty Propagation
Chair	**Ciaramella, Gander**	**Pop, Schulz**	**Bause, Vexler**	**Antonietti, Berrone, Di Pietro, Verani**	**Billaud-Friess, Ehrlacher, Ern**	**Chernov, Ernst, Krumscheid, Nobile**
13:30–13:55	**Thomas Carraro** Adaptive multiple shooting for parabolic optimization problems	**Clément Cancès** Parametrization improving the stability of Newton's method: the case of Richards' equation	**Monika Balázsová** Stability of higher-order ALE-STDGM for nonlinear problems in time-dependent domains	**Alessandro Russo** Serendipity Virtual Element Spaces	**Julia Brunken** Model reduction based on space-time variational formulations of transport equations	**Dirk Nuyens** Quasi-Monte Carlo (QMC) sampling
13:55–14:20	**Giulia Fabrini** Coupling Model Predictive Control and Dynamic Programming Methods for the Computation of Reduced-Order Optimal Feedback Laws	**David Seus** A linear domain decomposition method for partially saturated flow in porous media	**Miloslav Feistauer** DGM for the solution of nonlinear dynamic elasticity	**Lorenzo Mascotto** The *hp* version of the Virtual Element Method.	**Amina Benaceur** A progressive enhanced reduced basis/empirical interpolation method for non-linear parabolic PDEs	**Frances Kuo** Quasi-Monte Carlo for stochastic wave propagation
14:20–14:45	**Faycal Chaouqui** A New coarse correction for Neumann-Neumann Methods	**Ping Lin** A Moving Boundary Computational Model in Cancer Invasion of Tissue	**Filip Roskovec** Anisotropic *hp*–space-time discontinuous Galerkin method for the numerical solution of nonlinear problems	**Steffen Weißer** Anisotropic Polygonal and Polyhedral Finite Elements	**Gerrit Welper** Interpolation of functions with parameter dependent discontinuities by transformed snapshots.	**Alexey Chernov** Multilevel Monte Carlo approximation of covariance functions
14:45–15:10	**Gabriele Ciaramella** The method of reflections: relations with Schwarz methods and other classical iterative methods	**Mario Putti** A Monge-Kantorovich based model of plant root dynamics in soils.	**Gunar Matthies** Numerical studies of higher order variational time stepping schemes for evolutionary Navier–Stokes equations	**Guiseppe Vacca** Virtual Elements for the Navier-Stokes problem on polygonal meshes	**Nicolas Cagniart** Reduced basis methods for advection dominated problems	**Benjamin Peherstorfer** Multifidelity methods for rare event simulation
15:10–15:30	Coffee break at **Hotel Fleischers**					

Tuesday 26th September (afternoon)

Parallel session	**Kulturhus** **MS12** Limiter techniques for flow problems	**Fleischers Osa** **MS16** Mixed and nonsmooth methods in numerical solid mechanics	**Fleischers Sivle** **MS20** Advanced discretization methods for computational wave propagation	**Fleischers Kvitanosi** **MS7** FEM meshes with guaranteed geometric properties	**Fleischers Bergslien** **MS28** Model reduction methods for simulation and (optimal) control	**Fleischers Tarald** **MS22** Advances in numerical linear algebra methods and applications to PDEs
Chair	**May, Turek**	**Bertrand, Sander**	**Diaz, Grote**	**Korotov, Vatne**	**Benner, Heiland, Stoll, Zimmermann**	**Simoncini, Tani**
15:30–15:55	**Petr Knobloch** Algebraic flux correction for convection–diffusion problems	**Thomas Richter** An accelerated Newton multigrid method for nonlinear materials in structure mechanics and fluid mechanics	**Helene Barucq** Trefftz methods based on shaped functions locally computed with Discontinuous Galerkin methods. Application to the Helmholtz equation.	**Michal Křížek** Maximum angle condition for higher dimensional simplicial finite elements	**Ralf Zimmermann** Parametrization techniques for reduced-order bases and subspaces	**Zdeněk Strakoš** Preconditioning and discretization
15:55–16:20	**Birte Schmidtmann** Compact Third-Order Limiter Functions for Finite Volume Methods. Non-Uniform and 2D Grids	**Oliver Sander** Nonsmooth multigrid methods for plasticity and phasefield problems	**Théophile Chaumont-Frelet** Finite element approximation of electromagnetic waves with non-fitting meshes	**Jan Brandts** Properties of and relations between several classes of simplices	**Christian Himpe** Cross-Covariance-Based Model Reduction	**Maya Neytcheva** Analysis and experience in preconditioning of discrete PDE-constrained optimization problems
16:20–16:45	**Jesús Bonilla** High-order monotonicity preserving finite element methods for scalar convection-diffusion problems	**Gerhard Starke** Stress-Based Mixed Finite Element Methods with Weakly Enforced Symmetry for Elasto-Plasticity	**Claire Scheid** The Multiscale Hybrid Mixed method for time dependent propagation of electromagnetic waves.	**Jon E. Vatne** Geometrical Properties of Families of Mesh Elements	**Benjamin Peherstorfer** Online adaptive discrete empirical interpolation for nonlinear model reduction	**Mattia Tani** Preconditioning for linear systems arising from isogeometric analysis
16:45–17:10	**Dmitri Kuzmin** Flux-Corrected Transport Schemes for Continuous High-Order Bernstein Finite Elements	**Nils Viebahn** Pros and Cons of some mixed Galerkin and Least-Squares Finite Element schemes	**Elvira Shishenina** Trefftz-DG approximation for elasto-acoustics	**Ali Khademi** On FEM Convergence on Prismatic Meshes	**Ion Victor Gosea** Model order reduction of hybrid systems	**Jarle Sogn** Robust preconditioners for optimality systems – an infinite-dimensional perspective
17:10–17:30	Coffee break at **Hotel Fleischers**					

Tuesday 26th September (evening)

Parallel session	**Kulturhus** **CT2** Finite volume techqniques for hyperbolic models	**Fleischers Osa** **CT3** High performance computing and Eigenvalue problems	**Fleischers Sivle** **CT4** Porous media	**Fleischers Kvitanosi** **CT5** Adaptivity and applications	**Fleischers Bergslien** **CT6** New Applications for a posteriori error estimates	**Fleischers Tarald** **CT7** Advanced numerical linear algebra
Chair	**Fumagalli**	**Keilegavlen**	**Boon**	**Vermolen**	**Köcher**	**Gaspar**
17:30–17:55	**René Beltman** Conservative cut-cell discretization for viscous incompressible flow	**Emanuel Rubensson** The Chunks and Tasks model and locality-aware parallel sparse matrix-matrix multiplication	**Juan Michael Sargado** A new family of degradation functions for phase-field modeling of brittle fracture and flow in poroelastic materials	**Giulio Paolucci** Adaptive filters for first order Hamilton–Jacobi equations	**Birane Kane** Adaptive Discontinuous Galerkin Methods for flow in porous media	**Ali Dorostkar** Using a function representation of structured matrices to construct efficient multigrid methods
17:55–18:20	**Oliver Kolb** On a third order WENO boundary treatment for networks of hyperbolic conservation laws	**Pavel Kůs** GPU Optimisation of Large-Scale Eigenvalue Solver	**Jakub Solovský** Investigating vapor intrusion using mathematical model of two-phase compositional flow in porous media	**Achim Schroll** An adaptive viscosity scheme for multi–physics PDEs	**Korinna Rosin** A posteriori error estimates for quasi-static thermo-elasticity using fictitious domain methods	**Debora Sesana** Multigrid methods for block-circulant linear systems
18:20–18:45	**Jan ten Thije Boonkkamp** Nonlinear Local Boundary Value Problems for the Approximation of Fluxes in the Viscous Burgers Equations	**Önder Türk** Chebyshev spectral collocation method approximations of the Stokes eigenvalue problem based on penalty techniques	**Ingeborg G. Gjerde** Mixed methods for hierarchical flow models for non-isothermal wells in porous media	**Hakan Tarman** A Spectral Solenoidal-Galerkin Method for Flow Past a Circular Cylinder	**Andreas Rademacher** Dual weighted residual method based error indicators for the local choice of the finite element	**Sergey Dolgov** Low-rank tensor decomposition and cross approximation algorithms for parametric PDEs
18:45–19:10	**Emmanuel Franck** High order implicit relaxation schemes for nonlinear hyperbolic systems	**Parikshit Upadhyaya** On the convergence factor of the self-consistent field iteration	**Menel Rahrah** Monotonicity analysis and uncertainty quantification in Biot's poro-elasticity model using finite element methods	**Hynek Řezníček** Two methods for the numerical modelling of the PM transport and deposition on the vegetation	**Rolf Stenberg** A Posteriori Error Estimates for Kirchhoff Plate Elements	**Miroslav Kuchta** Preconditioners for a new generation of cell-based models of cardiac tissue

Wednesday 27th September (morning)

Parallel session	**Kulturhus** **MS19** Kernel methods for large scale problems: Algorithms and applications	**Fleischers Osa** **MS9** Discretizations and solvers for multi-physics problems	**Fleischers Sivle** **MS6** Recent Advances in Space-Time Galerkin Methods and Applications	**Fleischers Kvitanosi** **MS4** Polyhedral methods and applications	**Fleischers Bergslien** **MS14** Biomembranes, Elastic Shells, and Complex Interfaces Symposium	**Fleischers Tarald** **MS15** Uncertainty Propagation
Chair	**Larsson, Santin**	**Gaspar, Rodrigo**	**Bause, Vexler**	**Antonietti, Berrone, Di Pietro, Verani**	**Walker, Yu**	**Chernov, Ernst, Krumscheid, Nobile**
08:30–08:55	**Jeremy Levesley** Convergence rate of multilevel sparse grid quasi-interpolation on the torus	**Johannes Kraus** Parameter-robust stable discretizations and uniform preconditioners for classical three-field formulation of Biot's consolidation model	**Omar Lakkis** Aposteriori analysis of time hp-discontinuous Galerkin for fully discretized parabolic problems	**Ilaria Perugia** Virtual Element Methods for the Helmholtz Problem	**Thomas Yu** Numerical Solution and Uniqueness of the Canham-Evans-Helfrich Model for Biomembranes	**Sebastian Krumscheid** Multilevel Monte Carlo approximation of functions
08:55–09:20	**Emma Perracchione** Anisotropic weights for RBF-PU interpolation with subdomains of variable shapes.	**Carmen Rodrigo** Efficient solvers for the linear thermo-poroelasticity problem	**Boris Vexler** Discrete maximal parabolic regularity and best approximation results for Galerkin finite element solutions of parabolic problems	**Franco Dassi** Hitchhiker's guide© to the Virtual Element Method in 3D	**Antoine Laurain** Controlling the footprint of droplets	**Anthony Nouy** Higher-order principal component analysis for the approximation of functions in tree-based low-rank formats
09:20–09:45	**Victor Shcherbakov** A Meshfree Approach to Simulations of Ice Flow: Application to the Haut Glacier d'Arolla.	**James Adler** Energy Minimization and a Deflation Technique for Detecting Multiple Liquid Crystal Equilibrium States	**Dmitriy Leykekhman** Best approximation property for the gradient of the finite element solutions for parabolic problems	**Claudia Chinosi** A family of virtual elements for the Reissner-Mindlin plate	**Steven Ruuth** An implicit formulation of the closest point method using RBF-FD and applications to PDEs on moving surfaces	**Colin Fox** Bounding Errors in Estimates from Computational MCMC
09:45–10:10	**Francisco Bernal** A Radial Basis Function - Partition of Unity method for the incompressible Navier-Stokes equations.	**Prashant Kumar** A multigrid multilevel Monte Carlo method for transport in Darcy-Stokes system		**Francesca Gardini** Virtual Element Methods for second order elliptic eigenvalue problems	**Nung Kwan Yip** Convergence of various thresholding schemes	**Martin Eigel** A sampling-free adaptive Bayesian inversion with hierarchical tensor representations
10:10–10:30	Coffee break at **Hotel Fleischers**					
10:30–11:15	**Kulturhus**	**Lourenco B. da Veiga** – Virtual Elements for Magnetostatic Problems				
11:15–12:00	*Chair:* **Inga Berre**	**Barbara Kaltenbacher** – All-at-once versus reduced formulations of inverse problems and their regularization				
12:00–13:30	Lunch at **Hotel Fleischers**					

Wednesday 27th September (midday)

Parallel session	**Kulturhus** **MS12** Limiter techniques for flow problems	**Fleischers Osa** **MS27** Numerical methods for simulating processes in porous media	**Fleischers Sivle** **MS21** Unfitted Finite Element Methods: Analysis and Applications	**Fleischers Kvitanosi** **CT8** DG methods	**Fleischers Bergslien** **MS19** Kernel methods for large scale problems: Algorithms and applications	**Fleischers Tarald** **MS22** Advances in numerical linear algebra methods and applications to PDEs
Chair	**May, Turek**	**Pop, Schulz**	**Burman, Larson, Olshanskii, Reusken**	**Gjerde**	**Larsson, Santin**	**Simoncini, Tani**
13:30–13:55	**Sandra May** A vector-based slope limiter for finite volume schemes on non-coordinate-aligned meshes	**Omar Lakkis** Well-balanced kinetic schemes for the shallow water equation with bulk recharge and discharge	**Silvia Bertoluzza** The Fat Boundary Method: new results and perspectives	**Jonas Köhler** An ADI-dG method for wave-type equations	**Elisabeth Larsson** Parameter Estimation in Finance Using Radial Basis Function Methods	**Marco Verani** *hp*-AFEM and angles between polynomial subspaces
13:55–14:20	**Deep Ray** A high-resolution energy preserving method for the rotating shallow water equation	**Barbara Verfürth** Multiscale Methods for Waves in Periodic Structures	**Sara Zahedi** A Space-Time Cut Finite Element Method	**Olga Mula** A Discontinuous Petrov–Galerkin Method for Radiative Transfer	**Christian Rieger** Kernel methods for high dimensional pdes	**Mariarosa Mazza** Spectral analysis and spectral symbol for the 2D curl-curl (stabilized) operator with applications to the related iterative solutions
14:20–14:45	**Francesco Fambri** Discontinuous Galerkin methods for compressible flows on space-time adaptive meshes with a posteriori sub-cell FV limiting	**Ettore Vidotto** Operator splitting technique using streamline projection for two-phase flow with gravity in heterogeneous porous media	**Alexey Chernyshenko** A hybrid finite volume - finite element method for bulk-surface coupled problems	**Vaclav Kučera** Analysis of the time growth of the error of the DG method for advective problems	**Slobodan Milovanović** RBF-FD with Polyharmonic Splines for Multi-Dimensional PDEs in Finance	**Elias Jarlebring** Disguised and new quasi-Newton methods for nonlinear eigenproblems
14:45–15:10	**Murtazo Nazarov** Invariant domain preserving continuous finite element methods for system of conservation laws	**Martin Vohralík** A simple a posteriori estimate on general polytopal meshes with applications to complex porous media flows	**Christian Engwer** Mass conservation for a cut-cell dG discretization for PDEs on manifolds	**Dimitrios Zacharenakis** A posteriori error analysis for a discontinuous Galerkin approximation of the Euler-Korteweg model	**Ali Safdari-Vaighani** Radial basis function approximation method for pricing of basket options under jump diffusion models	**Valeria Simoncini** Matrix-equation-based strategies for certain structured algebraic linear systems
15:10–15:35		**Paul Zegeling** A moving mesh finite difference method for non-monotone solutions of non-equilibrium equations in porous media		**Isabella Furci** Staggered discontinuous Galerkin methods for the incompressible Navier-Stokes equations: spectral analysis and computational results		**Uwe Köcher** Solver and preconditioning technology for fully coupled poroelasticity models
15:35–15:55	Coffee break at **Hotel Fleischers**					

Wednesday 27th September (afternoon)

Parallel session	**Kulturhus** **MS1** Innovative Numerical Methods and their Analysis for Elliptic and Parabolic PDEs	**Fleischers Osa** **MS9** Discretizations and solvers for multi-physics problems	**Fleischers Sivle** **MS6** Recent Advances in Space-Time Galerkin Methods and Applications	**Fleischers Kvitanosi** **MS29** Recent advances on polyhedral discretizations	**Fleischers Bergslien** **MS5** Generalized Sampling, Reduced Modeling and sparse recovery	**Fleischers Tarald** **MS18** Noncommutative stochastic differential equations: Analysis and simulation
Chair	**Nochetto, Veeser**	**Gaspar, Rodrigo**	**Bause, Vexler**	**Antonietti, Berrone, Di Pietro, Verani**	**Mula, Poon**	**Ebrahimi-Fard, Malham, Wiese**
15:55–16:20	**Snorre Christiansen** Tools for constructing minimal finite element spaces of differential forms	**Argyrios Petras** Mathematical and Computational Modeling of the Radiofrequency Ablation for Cardiac Arrhythmias via Open-irrigated Catheter	**Ilario Mazzieri** A high-order discontinuous Galerkin approximation to second-order differential equations with applications to elastodynamics	**Matteo Cicuttin** Generic programming tools for Hybrid High-Order methods on arbitrary-dimensional, polytopal meshes	**Simone Brugiapaglia** Correcting for unknown errors in sparse high-dimensional function approximation	**Anke Wiese** The exponential Lie series for continuous semimartingales
16:20–16:45	**Lorenzo Tamellini** A sparse-grid version of IGA methods	**Stefan Frei** Long-term simulation of large deformation, mechano-chemical fluid-structure interactions with application to plaque growth in blood vessels	**Markus Bause** Space-Time Approximation of Wave Problems and Multiphysics Systems	**David Mora** A Virtual Element Discretization for the Vibration Problem of Thin Plates	**Elizabeth Qian** A Certified Reduced Basis Trust Region Approach to PDE-Constrained Optimization	**Yvain Bruned** Renormalisation of singular SPDEs
16:45–17:10	**Ragnar Winther** Local coderivatives and approximation of Hodge Laplace problems	**Ana Budiša** A BDDC method for robust discretization of flow in fractured porous media	**Johannes Ernesti** The application of discontinuous Petrov-Galerkin space-time discretizations and inexact Newton methods to seismic imaging	**Stefano Scialò** Flow simulations in poro-fractured media with a VEM-BEM coupled approach	**Albert Cohen** Measurement selection for reduced model based state estimation	**Laure Coutin** Invariance for rough differential equations.
17:10–17:35	**Thomas Boiveau** Approximation of parabolic equations by space-time tensor methods	**Magnus Svärd** Convergence rates of energy stable finite difference schemes.	**Manuel Borregales** Space-time finite elements for non-linear poromechanics	**Ilario Mazzieri** Stability and dispersion analysis of Discontinuous Galerkin methods for wave propagation problems on polytopic meshes	**Jose Luis Romero** Nonuniform sampling and universality of stable sampling rates.	**Simon Malham** Stochastic differential systems and efficient integrators
20:15–21:00	**Kulturhus** *Chair:* Alfio Quarteroni	Open Lecture by **Kent-Andre Mardal** – The operator preconditioning framework with various applications to interstitial fluid flow and the aging human brain				

Thursday 28th September (morning)

Parallel session	**Kulturhus** **MS14** Biomembranes, Elastic Shells, and Complex Interfaces Symposium	**Fleischers Osa** **MS2** Mathematical aspects for flows in fractured porous media	**Fleischers Sivle** **MS17** A posteriori error estimation, adaptivity and approximation	**Fleischers Kvitanosi** **MS7** FEM meshes with guaranteed geometric properties	**Fleischers Bergslien** **CT9** Kinetics and Maxwell's equations	**Fleischers Tarald** **MS15** Uncertainty Propagation
Chair	**Walker, Yu**	**Fumagalli, Keilegavlen**	**Kreuzer, Veeser, Zanotti**	**Korotov, Vatne**	**Radu**	**Chernov, Ernst, Krumscheid, Nobile**
08:30–08:55	**Ricardo Cortez** Microorganisms swimming through a viscoelastic network	**Stefano Berrone** Overcoming mesh constraints in large scale flow and transport simulations in poro-fractured media	**Peter Binev** Tree Approximation and Adaptive Methods	**Tomáš Vejchodský** Adaptive mesh refinement and robust guaranteed error bounds	**Derya Altıntan** Maximum Entropy Method for Jump-Diffusion Approximations of Chemical Kinetics	**Markus Bachmayr** Space-parameter-adaptive approximation of affine-parametric elliptic PDEs
08:55–09:20	**Lisa Fauci** Bacterial motility in confined environments	**Ivar Stefansson** Handling of Fractures and Intersections in Finite Volume Discretizations	**Andreas Veeser** Best error localization with piecewise polynomials in a Sobolev Hilbert triple	**Maria González** Adaptive solution of convection-diffusion problems using a stabilized mixed finite element method	**Canan Bozkaya** Magnetic field and radiation effects on natural convection in a porous enclosure	**Akil Narayan** Compressed sensing with sparse corruptions: Fault-tolerant sparse collocation approximations
09:20–09:45	**Chandrasekhar Venkataraman** Asymptotic limits of models for receptor-ligand dynamics	**Roland Masson** Hybrid dimensional two-phase flow in fractured porous media	**Fernando Gaspoz** H^1-stability of the L^2-projection and applications to adaptive methods	**Sergey Korotov** Longest-Edge n-Section Algorithms	**Munevver Tezer-Sezgin** Electrically Driven MHD Flow Between two Parallel Slipping and Partly Conducting Infinite Plates	**Harri Hakula** Stochastic Galerkin approximation of the Reynolds equation with random film thickness
09:45–10:10	**David Landa Marbán** An upscaled model for permeable biofilm formation in a thin strip	**Runar Berge** Hydraulic stimulation and friction laws for fracture deformation – a numerical study	**Markus Weimar** Explicit regularity estimates for solutions to quasi-linear PDEs	**Martin Alkämper** A weak compatibility condition for Newest Vertex Bisection	**Mustafa Gaja** Splitting Schemes and Compatible Spaces for Incompressible MHD	**Marc Schmidlin** Uncertainty Quantification for PDEs with Anisotropic Random Diffusion
10:10–10:30	Coffee break at **Hotel Fleischers**					
10:30–11:15	**Kulturhus**	**Marie Rognes** – Compatible discretizations in our hearts and minds				
11:15–12:00	*Chair:* **Petter Bjørstad**	**Fabio Nobile** – Dynamical low rank approximation of random time dependent PDEs				
12:00–13:30	Lunch at **Hotel Fleischers**					

Thursday 28th September (midday)

Parallel session	**Kulturhus** **MS8** New frontiers in domain decomposition methods: Optimal control, model reduction, and heterogeneous problems	**Fleischers Osa** **MS27** Numerical methods for simulating processes in porous media	**Fleischers Sivle** **MS20** Advanced discretization methods for computational wave propagation	**Fleischers Kvitanosi** **MS17** A posteriori error estimation, adaptivity and approximation	**Fleischers Bergslien** **MS28** Model reduction methods for simulation and (optimal) control	**Fleischers Tarald** **MS25** PDE Software Frameworks
Chair	**Ciaramella, Gander**	**Pop, Schulz**	**Diaz, Grote**	**Kreuzer, Veeser, Zanotti**	**Benner, Heiland, Stoll, Zimmermann**	**Klöfkorn, Ham**
13:30–13:55	**Marco Discacciati** Domain decomposition methods for the Stokes-Darcy problem	**Stefan Turek** Numerical benchmarking for 3D multiphase flow: New results	**Marlis Hochbruck** Error analysis of an ADI splitting for discontinuous Galerkin discretizations of linear Maxwell's equations	**Lars Diening** Local estimates for the discrete (p-)harmonic functions for fully adaptive meshes	**Jan Heiland** Space-time Galerkin POD for Optimal Control of Nonlinear PDEs	**Robert Klöfkorn** DunePy: Combining Dune and Python
13:55–14:20	**Tommaso Vanzan** Optimized Schwarz methods for Stokes-Darcy coupling	**Anibal Coronel** On the numerical approximation for an inverse problem arising in a two-phase flow in porous media	**Andreas Sturm** Locally implicit time integration for linear Maxwell's equations	**Karsten Urban** Reduced Basis Methods and Adaptivity	**Carmen Gräßle** Adaptive trust-region POD for optimal control of the Cahn-Hilliard equation	**Jørgen S. Dokken** Shape Optimization with Multiple Meshes
14:20–14:45	**Idoia Cortes Garcia** Optimized Field/Circuit Coupling for the Simulation of Quenches in Superconducting Magnets	**Koondanibha Mitra** A Globally Convergent Scheme for Non-linear Pseudo-parabolic Equations Arising from Non-equilibrium effects in Porous Media	**Marcus Grote** Convergence Analysis of Energy Conserving Explicit Local Time-stepping Methods for the Wave Equation	**Alexander Haberl** Adaptive FEM and adaptive BEM for the Helmholtz equation	**Luca Mechelli** POD-Based Model Predictive Control with control and state constraints	**David Ham** Firedrake: a symbolic numerical mathematics approach to the finite element method.
14:45–15:10	**Julien Salomon** A decomposition method for the design of propellers and turbines: "The Blade Element Momentum" theory	**Anna Kvashchuk** A two-phase flow simulation method with improved stability	**Sébastien Imperiale** High order local time discretization for wave equations based on domain decomposition methods.	**Patrik Daniel** An adaptive *hp*-refinement strategy with computable guaranteed error reduction factors	**Kathrin Smetana** Probabilistic A Posteriori Error Estimates in Model Reduction	**Eirik Keilegavlen** Discretization of mixed-dimensional problems using legacy codes
15:10–15:30	Coffee break at **Hotel Fleischers**					

Thursday 28th September (afternoon)

Parallel session	**Kulturhus** **MS1** Innovative Numerical Methods and their Analysis for Elliptic and Parabolic PDEs	**Fleischers Osa** **MS3** Modeling and Simulation of Sea Ice	**Fleischers Sivle** **MS21** Unfitted Finite Element Methods: Analysis and Applications	**Fleischers Kvitanosi** **MS4** Polyhedral methods and applications	**Fleischers Bergslien** **CT10** Gas flows	**Fleischers Tarald** **MS25** PDE Software Frameworks
Chair	**Nochetto, Veeser**	**Kimmritz, Richter**	**Burman, Larson, Olshanskii, Reusken**	**Antonietti, Berrone, Di Pietro, Verani**	**Borregales**	**Klöfkorn, Ham**
15:30–15:55	**Raphéle Herbin** The gradient discretization method	**Martin Losch** A parallel Jacobian-free Newton-Krylov solver for a coupled sea ice-ocean model	**Alexandre Ern** A Cut Hybrid High-Order Method for Elliptic Interface Problems	**Andrew Gillette** A Plethora of Basis Functions for Quadrilaterals	**Matthias Schlottbom** An approach for the efficient solution of the time-dependent linear Boltzmann equation	**Daniele Prada** Advances in Feel++ : an Open-Source C++ Framework for solving PDEs with applications in Health, Physics and Industry.
15:55–16:20	**Pietro Zanotti** Quasi-optimal non-conforming methods for linear variational problems	**Carolin Mehlmann** A Newton multigrid solver for viscous-plastic sea ice models	**Peter Hansbo** Finite elements for bulk problems with embedded lower-dimensional structures	**Alessio Fumagalli** Dual virtual element method for fractured geothermal systems	**Daisuke Tagami** Numerical Analysis of a Generalized Particle-Based Method for Convection-Diffusion Equations and its Application	**Martin Kronbichler** High-order infrastructure in the `deal.II` finite element libray
16:20–16:45	**Winnifried Wollner** A priori error analysis for optimization with elliptic PDE constraints	**Madlen Kimmritz** On explicit methods for solving the sea ice momentum equation using the EVP rheology.	**Christoph Lehrenfeld** Higher order isoparametric unfitted space-time finite element methods for problems involving moving domains	**Andrea Borio** The Virtual Element Method for the transport of passive scalars in Discrete Fracture Networks	**Ondrej Pártl** Numerical Modeling of Non-isothermal Compositional Compressible Gas Flow in Soil and Coupled Atmospheric Boundary Layer	**Steffen Müthing** PDELab, HPC and code generation: How to tune a discretization framework for performance
16:45–17:10	**Andreas Veeser** Quasi-optimality in parabolic spatial semidiscretizations	**James Williams** The effects of increasing spatial resolution on the sea-ice drift speed and energy budget in the viscous-plastic sea-ice model.	**Robert Eymard** Compactness properties of non-conforming finite elements spaces	**Daniele Prada** FETI-DP preconditioners for the Virtual Element Method in two and three dimensions	**Ylva Rydin** High-fidelity sound propagation in a varying 3D atmosphere	**Antonello Gerbi** The LifeV Finite Elements library: recent developments and cardiovascular applications
17:10–17:25	Coffee break at **Hotel Fleischers**					

Thursday 28th September (evening)

Parallel session	**Kulturhus** **CT11** Error estimates for FEM	**Fleischers Osa** **MS3** Modeling and Simulation of Sea Ice	**Fleischers Sivle** **CT12** Homogenization	**Fleischers Kvitanosi** **CT13** Ray tracing and optical illumination problems	**Fleischers Bergslien** **MS5** Generalized Sampling, Reduced Modeling and sparse recovery	**Fleischers Tarald** **CT14** Solid mechanics
Chair	**Svärd**	**Kimmritz, Richter**	**Fumagalli**	**Rodrigo**	**Mula, Poon**	**Both**
17:25–17:50	**Vladimir Vasilyev** Error estimates for approximate solutions of some discrete equations	**Fleurianne Bertrand** A Least Squares Finite Element Method for Coupled Sea Ice and Subsurface flow	**Mats Brun** Upscaling of coupled geomechanics, flow and heat in a poro-elastic medium in the quasi-static situation.	**Carmela Filosa** An inverse ray mapping method in phase space applied to two-dimensional optical systems.	**Tommaso Taddei** A Reduced Basis Technique for Long-Time Unsteady Turbulent Flows	**Vanessa Lleras** Nitsche-based finite element method for contact with Coulomb friction
17:50–18:15	**Max Winkler** Error estimates for the finite element approximation of normal derivatives and boundary control problems	**Timothy Williams** neXtSIM: A new Lagrangian sea-ice model	**Felix Dietrich** Derivation of higher-order terms in FFT-based homogenization and their influence on effective properties.	**Bart van Lith** Solving inverse illumination problems with Liouville's equation	**Vegard Antun** Uniform recovery guarantees for Walsh sampling and wavelet reconstruction	**Katharina Rafetseder** A new approach to mixed methods for Kirchhoff-Love plates and shells
20:00	Conference dinner at **Hotel Fleischers**					

Friday 29th September (morning)

Parallel session	**Kulturhus** **MS1** Innovative Numerical Methods and their Analysis for Elliptic and Parabolic PDEs	**Fleischers Osa** **CT15** Parameter estimation and modelling	**Fleischers Sivle** **MS21** Unfitted Finite Element Methods: Analysis and Applications	**Fleischers Kvitanosi** **MS19** Kernel methods for large scale problems: Algorithms and applications	**Fleischers Bergslien** **MS28** Model reduction methods for simulation and (optimal) control	**Fleischers Tarald** **MS11** Efficient Propagation of Uncertainties in Hyperbolic Partial Differential Equations
Chair	**Nochetto, Veeser**	**Both**	**Burman, Larson, Olshanskii, Reusken**	**Larsson, Santin**	**Benner, Heiland, Stoll, Zimmermann**	**Pettersson, Olderkjær**
08:30–08:55	**Christian Kreuzer** Oscillation in a posteriori error analysis	**Daniel Walter** A sparse control approach to Optimal Design of Experiments for PDEs	**Maxim Olshanskii** New unfitted FEM for PDEs on evolving surfaces	**Barbara Zwicknagl** Kernel methods for multiscale approximation	**Martin Hess** Spectral Element Reduced Basis Method in parametric CFD	**Per Pettersson** Level set methods for stochastic discontinuity detection in nonlinear wave propagation problems
08:55–09:20	**Claudio Canuto** On the convergence and optimality of adaptive ***hp***-FEM	**Clarice Poon** On the use of total variation minimization of measures – Sampling the Fourier transform along radial lines.	**Arnold Reusken** Space-time unfitted Finite Element Methods for PDEs with moving discontinuities	**Dominik Wittwar** On uncoupled separable matrix-valued kernels	**Cédric Herzet** Beyond Galerkin Projection by Using "Multi-space" Priors	**Daniel S. Olderkjær** A Locally-Reduced-Order-Basis Method for Stochastic Galerkin Formulations of Nonlinear Hyperbolic Problems
09:20–09:45	**Alfred Schmidt** Finite element methods for parabolic problems with time dependent domain	**Aurea Martínez** Heavy metals phytoremediation: First mathematical modelling results	**Erik Burman** Cut finite element methods with boundary value correction	**Gabriele Santin** Greedy methods for kernel-based approximation	**Zoi Tokoutsi** Real Time Optimization of Thermal Ablation Cancer Treatments – An application of the certified reduced basis method for parametrized optimal control problems	**Gabriela Malenová** Uncertainty quantification for high frequency waves
09:45–10:10	**Shawn W. Walker** The Ericksen Model of Liquid Crystals with Colloidal and Electric Effects	**Lino J. Alvarez-Vázquez** Urban heat island effect in metropolitan areas: An optimal control perspective	**Carl Lundholm** A space-time cut finite element method for the heat equation	**Tommaso Taddei** An Adaptive Parametrized-Background Data-Weak approach to Variational Data Assimilation		**Jan Nordström** Stochastic Galerkin Projection and Numerical Integration for Burgers' equation
10:10–10:30	Coffee break at **Hotel Fleischers**					
10:30–11:15	**Kulturhus**	**Ricardo Nochetto** – Thermally Actuated Bilayer Plates				
11:15–12:00	*Chair:* **Gunilla Kreiss**	**Rob Scheichl** – Multilevel Monte Carlo and beyond				
12:00–12:15	Closing remarks by **Florin Radu** at **Kulturhus**					
12:15	Lunch at **Hotel Fleischers**					