

PDESOFT PROGRAMME (all talks in MS.05, Zeeman building)

Monday 4th

- 9:00-9:45 Registration (Mathematics Research Center)
- 9:45-9:55 Welcome and opening speech
- 09:55-10:45 Session M.1
- M.1.1 Timo Heister
Regression Testing and Continuous Integration for Scientific Codes
 - M.1.2 Daniel Shapero and Ian Joughin
Icepack: a library for finite element modeling of glaciers and ice sheets
- 10:45-11:15 Coffee break
- 11:15-12:40 Session M.2
- M.2.1 Claus-Justus Heine
Dune::ACFem -- Adaptive Convenient Finite Elements
 - M.2.1b Martin Nolte and Andreas Dedner
Rapid Prototyping in DUNE Through Python Scripting
 - M.2.2 Birane Kane
Adaptive Higher Order Discontinuous Galerkin Methods for Two-phase Flow in Porous Media with DUNE-FEM
 - M.2.3 Marco Agnese
FEM approximation of Two-Phase Navier-Stokes Flow using DUNE-FEM
 - M.2.4 Matteo Icardi
Uncertainty quantification in numerical homogenisation for porous media problems
- 12:40-14:00 Lunch break
- 14:00-15:40 Session M.3
- M.3.1 Andreas Kloeckner and Matt Wala
Describe, Don't Implement: Declarative Programming for PDE Solvers
 - M.3.2 Daniel Arndt, Pablo Lucero, Julius Witte, Patrick Esser and Guido Kanschat
A Parallel Multigrid Matrix-Free Solver using Schwarz Smoothers
 - M.3.3 Rene Milk, Stephan Rave and Felix Schindler
pyMOR - Generic Model Order Reduction Algorithms for MPI Distributed PDE Solvers
- 15:40-16:10 Coffee break
- 16:10-17:50 Session M.4
- M.4.1 Mahmoud Aboukhedr
A novel microfluidic framework introduced for low capillary number moving interface
 - M.4.2 Nagaiah Chamakauri
A multiscale computational framework for the simulation of calcium cycling
 - M.4.3 Jorrit Fahlke and Christian Engwer
Grid Patches: Cache Efficiency and Vectorization for Low-order Methods in Dune
 - M.4.4 Oleg Shchyglo
OpenPhase - the open source phase field simulation library
- 18:00 Wine and snacks

Tuesday 5th

- 09:30-10:45 Session T.1
- T.1.1 Matthias Maier, Mauro Bardelloni and Luca Heltai
Linear Operator---a generic, high-level expression syntax for deal.II
 - T.1.2 Daniel Ruprecht and Robert Speck
pySDC: A Python framework for spectral deferred corrections and PFASST
 - T.1.3 Anna Kvashchuk, Robert Klöfkorn and Martin Nolte
Higher Order Finite Volume Methods on Polyhedral Grids in DUNE
- 10:45-11:15 Coffee break
- 11:15-12:40 Session T.2
- T.2.1 Joachim Schoeberl and Matthias Hochsteiger
NGS-Py: Netgen/NGSolve with a new Python front-end
 - T.2.1b Matthias Hochsteiger and Joachim Schoeberl
NGS-Py: Efficient element matrix calculation and application
 - T.2.2 Federico Municchi and Stefan Radl
Architecture and application of the data filtering library "CPPPO" to transport phenomena in dense gas-particle flows
 - T.2.3 Georgios Kanellis and Antti Oksanen
Steady State modelling of the FLAME D in OpenFOAM using the Eddy Dissipation Combustion Model.
 - T.2.4 Nikolaos Kyriazis, Phoivos Koukouvinis and Manolis Gavaises
A compressible solver for modelling cavitation in OpenFOAM
- 12:40-14:00 Lunch break
- 14:00-15:40 Session T.3
- T.3.1 **Stéphanie Chaillat-Loseille**
Fast solvers for 3D elastodynamic Boundary Element Methods
 - T.3.2 Dominic Kempf, Timo Koch, Bernd Flemisch and Peter Bastian
Automated system testing in scientific numerical software frameworks using the example of Dune
 - T.3.3 Christian Engwer
Using horizontal vectorization in the DUNE-ISTL C++ solver library
- 15:40-16:10 Coffee break
- 16:10-17:55 Session T.4
- T.4.1 Martin Alkämper
A Weak Compatibility Condition for Newest Vertex Bisection
 - T.4.2 Massimiliano Martinelli, Pablo Antolin and Miguel Sebastian Pauletti
IGATools: a general purpose C++14 library for Isogeometric Analysis
 - T.4.3 Marian Piatkowski and Peter Bastian
A discontinuous Galerkin based incompressible Navier-Stokes solver
 - T.4.4 René Milk, Mario Ohlberger and Felix Schindler
A generic discretization toolbox: dune-gdt
 - T.4.4b René Milk, Felix Schindler, Mario Ohlberger and Tobias Leibner
Extending DUNE: The dune-xt modules
- 19:00 Social dinner

Wednesday 6th

09:30-10:45 Session W.1

- W.1.1 David Wells, Jeff Banks and Fengyan Li
Partitioned Fluid Structure Interactions for Stokes Flow Problems
- W.1.2 Andrea Cangiani, Andreas Dedner, Ganesh Diwan and Martin Nolte
A generic implementation of the Virtual Element Method
- W.1.3 Matthew Scroggs, Timo Betcke and Erik Burman
Coupling The Finite And Boundary Element Methods With FEniCS And BEM++

10:45-11:15 Coffee break

11:15-12:40 Session W.2

- W.2.1 Lawrence Mitchell, David A. Ham, Gheorghe-Teodor Bercea, Miklós Homolya, Fabio Luporini, Paul H. J. Kelly, Florian Rathgeber and Andrew T. T. McRae
Firedrake: composable abstractions for finite element simulation
- W.2.1b Miklós Homolya, Lawrence Mitchell, Fabio Luporini, Andrew T. T. McRae and David Ham
TSFC: a structure-preserving form compiler
- W.2.2 Ansgar Burchardt
Scientific Software and Linux Distributions
- W.2.3 Lehel Banjai, Emmanuil Geogoulis and Oluwaseun Lijoka
A Trefftz polynomial space-time discontinuous Galerkin method for the second order wave equation
- W.2.4 Daniel Loghin
Domain decomposition methods for reaction-diffusion systems

12:40-14:00 Lunch break

14:00-15:40 Session W.3

- W.3.1 Chris Cantwell, David Moxey, Douglas Serson, Mike Kirby and Spencer Sherwin
Nektar++: An open-source spectral/hp element framework
 - ~~W.3.2 Michael Lange, Matthew Knepley, Lawrence Mitchell and Gerard Gorman
Efficient mesh management in Firedrake using PETSc DMplex~~
 - W.3.3 Victor Gladkikh, Yana Gurieva, Valery Ilin, Andrei Moskalev, Artyom Petukhov and Igor Skopin
Computational methods and technologies of the Basic System of Modelling (BSM)
- MOVED FROM W.4** Robert Sawko, Marcin Traczyk and Albert Yiamakis
Comparative studies of population balance methods in liquid-liquid flows

15:40-16:10 Coffee break

~~16:10-17:25~~ 17:00 Session W.4

- W.4.1 **MOVED TO W.3** Robert Sawko, Marcin Traczyk and Albert Yiamakis
Comparative studies of population balance methods in liquid-liquid flows
- W.4.2 Stefan Girke and Tobias Malkmus
The DUNE-FEM-DG module - towards a unified multi physics framework
- W.4.3 Lukasz Kaczmarczyk and Chris Pearce
Implementation in MoFEM of hierarchical and heterogenous approximations bases

17:25-17:30 Closing remarks

Thursday 7th

9:30-17:30 Coding days

TBD

Friday 8th

9:30-17:30 Coding days

TBD

CONTRIBUTED TALKS : 25 MIN

SHORT TALKS: 15 MIN

COMBINED TALKS: 40 MIN in total for 2 talks

INVITED TALKS: 45 MIN