

**Workshop 1 on “Theory of Differential Complexes and Related Models”
of the Thematic Programme on “Differential Complexes: Theory, Discretization, and
Applications”**

May 4 - 8, 2026

organized by

**Andreas Cap (U of Vienna), Ralf Hiptmair (ETH Zurich), Kaibo Hu (U of Oxford),
Joachim Schöberl (TU Wien)**

• **Monday, May 4th, 2026**

09:00 – 11:30 **Registration & Welcome**

11:30 – 12:00 **Kickoff & introduction of participants**

12:00 – 14:00 **Lunch Break**

14:00 – 14:45 **Snorre Christiansen (U Oslo)**

Regge metrics with enhanced trace

14:45 – 15:30 **Ganghui Zhang (U of Oxford)**

Finite element methods for isometric embedding of Riemannian manifolds

15:30 – 16:00 **Coffee Break**

• **Tuesday, May 5th, 2026**

09:30 – 10:15 **Dirk Pauly (TU Dresden)**

The Closed Range Property of the De Rham Complex in Unbounded Domains

10:15 – 10:45 **Coffee Break**

10:45 – 11:30 **Pratyush Potu (Brown U, Providence)**

Discrete Poincaré and Bogovskii operators on cochains and Whitney forms

11:30 – 12:15 **Jia Jia Qian (U of Oxford)**

The discrete de Rham method for geometric partial differential equations

12:15 – 14:00 **Lunch Break**

14:00 – 14:45 **Yizhou Liang (U of Oxford)**

Finite Element Complexes with Traces Structures: A unified framework for cohomology and bounded interpolation

14:45 – 15:30 **Anouk Wisse (TU Delft)**

Existence and uniqueness of solutions to the generalized wave equation

15:30 – 16:00 **Coffee Break**

16:00 – 16:45 **Umberto Zerbinati (U of Oxford)**

An Exterior Calculus Perspective on Kinetic Theory

- **Wednesday, May 6th, 2026**

09:30 – 10:15 **Boris Andrews (U of Oxford)**

Stabilisation of the Navier–Stokes equations by enstrophy preservation

10:15 – 10:45 **Coffee Break**

10:45 – 11:30 **Mingdong He (U of Oxford)**

Topology-preserving finite element schemes for magnetohydrodynamics

11:30 – 12:15 **Arax Leroy (U de Montpellier)**

Design of a Polytopal Stokes–de Rham BGG Diagram and Associated Complexes, with Applications to Plate Models

12:15 – 14:00 **Lunch Break**

14:00 – 14:45 **Jan Martin Nordbotten (U of Bergen)**

Mixed-dimensional modeling of composite elastic structures

14:45 – 15:30 **Kaibo Hu (U of Oxford)**

Finite element form-valued forms

15:30 – 16:00 **Coffee Break**

18:00 – 22:00 **Workshop Dinner**

- **Thursday, May 7th, 2026**

09:30 – 10:15 **Andrea Bressan (CNR-IMATI, Pavia)**

Compatible Overlapping Subspaces Adaptivity using splines

10:15 – 10:45 **Coffee Break**

10:45 – 11:30 **Radovan Dabetic (ETH Zurich)**

Multigrid for FEEC using Mass-Lumping and Transforming Smoothers: Algorithms and Results

11:30 – 12:15 **Jindong Wang (U of Oxford)**

Finite element antidynamo theorems and generalized Hodge theory

12:15 – 14:00 **Lunch Break**

14:00 – 14:45 **Xuehai Huang (SUFU, Shanghai)**

Distributional Finite Element Complexes and Applications to Partial Differential Equations

14:45 – 15:30 **Zheqian Tang (SUFU, Shanghai)**

An optimal and robust nonconforming finite element method for the strain gradient elasticity.

15:30 – 16:00 **Coffee Break**

16:00 – 16:45 **Duygu Sap (U Warwick)**

Construction of structure-preserving finite elements on n -dimensional cubical meshes via differential complexes

- **Friday, May 8th, 2026**

09:30 – 10:15 **Rod Gover (U of Auckland)**

Tipping the scales: Using some BGG complexes and the tractor connection to study Killing type equations and yield (super)integrable systems.

10:15 – 10:45 **Coffee Break**

10:45 – 11:30 **Andreas Cap (U of Vienna)**

A Riemannian version of the BGG construction

11:30 – 12:15 **Igor Khavkine (IM CAS, Prague)**

Compatibility complex for the conformal-to-Einstein operator

12:15 – 14:00 **Lunch Break**

14:00 – 16:45 **Time for informal discussions**

All talks take place at ESI Boltzmann Lecture Hall!