

Week 2 of the Thematic Programme on
“Differential Complexes: Theory, Discretization, and Applications”

April 27 - Mai 1, 2026

organized by

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

• **Monday, April 27th, 2026**

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

09:30 – 10:45 **Andreas Cap (U of Vienna)**

The BGG construction I

Contents (of all parts):

1. Differential forms formally & the Rumin complex in three dimensions
2. Geometric interpretation and invariance properties
3. General BGG sequences on domains in R^n
4. The role of representation theory
5. Some comments on extension to manifolds
6. Function spaces & application in analysis, continuum mechanics, and finite elements

10:45 – 11:00 **Coffee break**

11:00 – 12:15 **Andreas Cap (U of Vienna)**

The BGG construction II

12:15 – 14:00 **Lunch break**

14:00 – 14:45 **Simon Goodwin (U of Auckland)**

Superintegrable Systems and Tractors

14:45 – 15:30 **Filippa Lo Biundo (U Leeds)**

Pansu pullback and spectral complexes on Carnot groups

15:30 – 16:00 **Coffee break**

16:00 – 16:45 **Open problem session**

• **Tuesday, April 28th, 2026**

09:30 – 10:45 **Andreas Cap (U of Vienna)**

The BGG construction III

10:45 – 11:00 **Coffee break**

11:00 – 12:15 **Andreas Cap (U of Vienna)**

The BGG construction IV

12:15 – 14:00 **Lunch break**

14:00 – 15:30 **Andreas Cap (U of Vienna)**

The BGG construction V

15:30 – 16:00 **Coffee break**

- **Wednesday, April 29th, 2026**

09:30 – 10:45 **Andreas Cap (U of Vienna)**

The BGG construction VI

10:45 – 11:00 **Coffee break**

11:00 – 12:15 **Andreas Cap (U of Vienna)**

The BGG construction VII

12:15 – 14:00 **Lunch break**

14:00 – 14:45 **Johnny Guzman (Brown U, Providence)**

Commuting projections preserving discrete boundary data

14:45 – 15:30 **Michael Reichelt (TU Graz)**

Towards a de-Rahm like Complex for Hyperbolic Problems

15:30 – 16:00 **Coffee Break**

- **Thursday, April 30th, 2026**

09:30 – 10:45 **Kaibo Hu (U of Oxford)**

The BGG construction VIII

10:45 – 11:00 **Coffee break**

11:00 – 12:15 **Kaibo Hu (U of Oxford)**

The BGG construction IX

12:15 – 14:00 **Lunch break**

14:00 – 15:30 **Kaibo Hu (U of Oxford)**

The BGG construction X

15:30 – 16:00 **Coffee break**

- **Friday, May 1st, 2026**

Public Holiday in Austria – ESI closed

All talks take place at ESI Boltzmann Lecture Hall!