wpi

MMM MATHEMATICS - MAGNETISM - MATERIALS

universität wien

The **Wolfgang Pauli Institut** jointly with
the **research platform MMM „Mathematics-Magnetism-Materials", Univ. Wien**

kindly invite you to the talk of **Peter KORN** (MPI Meteorology Hamburg)

Time: Friday, 3. Nov 2023, 11h00 – 12:00

Place: WPI-MMM seminarroom, 8th floor, Oskar-Morgenstern-Platz 1, 1090

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0) 11h30 – 11h00 : Coffee/tea & Cake/cookie

1) 11h00 – 11h05 : **Introduction :** Rupert **Klein** (FU Berlin & Pauli Fellow WPI Wien)

2) 11h05 – 11h45 : **Peter Korn** (Max Planck Institute for Meteorology Hamburg)

"PDE dynamics in numerical ultra-high-resolution climate modelling"

Abstract:
We discuss some aspects of the effort to produce a "digital twin" of the earth climate. The status of ultra-high-resolution numerical climate modelling and recent computational achievements are discussed. Mathematical challenges and opportunities arise when numerical models aim to represent an increasing number of turbulent scales. These challenges comprise the PDE of atmosphere and ocean dynamics, their numerical discretization and the modelling of (still) unresolved scales.
This is part of the research of the DFG Forschungsgruppe FOR 5528: *Mathematical Study of Geophysical Flow Models: Analysis and Computation.*

Short Biography:
Peter Korn holds a PhD in mathematics from Univ. Erlangen-Nürnberg. After working in Signal- and Image Processing he went to the MPI for Meteorology in Hamburg, where he worked first on Data Assimilation and then on computational atmosphere - and ocean modelling. His scientific interests are in numerics and analysis of PDE and scientific computing, with focus on (geophysical) fluid dynamics and understanding turbulence.

He is head of the "Complex Modelling and Extreme Computing" Group at the MPI for Meteorology, where he works on computational Atmosphere/Ocean Modelling. He is the main developer of ICON-O, the ocean component of the global climate model ICON, a new Earth system model that was developed from scratch in a collaboration between the MPI for Meteorology, the German Weather Service DWD and the German Climate Computing Centre. ICON covers Weather as well as Climate scales.

He is a founding member of the Lothar Collatz Center for Computing at Univ. Hamburg, and he is Principal Investigator in the new DFG Forschungsgruppe FOR 5528.

Norbert J Mauser
(director WPI & head research platform MMM)