Fakultät f. Mathematik, Universität Wien
Wolfgang Pauli Institut
Oskar Morgensternplatz 1 A-1090 Wien

17. PAULI KOLLOQUIUM

The **Wolfgang Pauli Institut,** the FWF DoktoratsKolleg „Dissipation and Dispersion in Nonlinear PDEs“ and the FWF SpezialforschungsBereich “Taming Complexity in PDE Systems” kindly invite you to the talk of **Rupert KLEIN**

Time: **Monday, 12. June 2017, *17:00 – 18:15***

Place: **„Hörsaal 4“, Fak.Mathematik, Oskar-Morgensternplatz 1**

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1) ***17h00*** **:** ***“Introduction”*** by **Sabine HITTMAIR** (U. Wien)

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2) ***17h15 – 18h00*** **:** **Rupert Klein** (FU Berlin) :

« Mathematics, a key to Climate Change Research »

Abstract: Mathematics in climate research is often thought to be mainly a provider of techniques for solving, e.g., the atmosphere and ocean flow equations. Three examples elucidate that its role is much broader and deeper:

1) Climate modelers often employ reduced forms of “the flow equations” for efficiency. Mathematical analysis allow us to assess regime of validity of such models.

2) Climate is defined as "weather statistics". Yet, climate research focuses on how climate changes in time while a reliable notion of “time dependent statistics” is as yet lacking. Mathematics provides advanced data analysis techniques for time series with non-trivial temporal trends.

3) Climate research, economy, and the social sciences are to generate a scientific basis for informed political decision making. Subtle language barriers often hamper systematic progress in this area. Mathematical formalization helps structuring related discussions and thus enables interdisciplinary research.

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3) ***18h00 - : “discussion”*** *with drinks & snacks*

Norbert J Mauser
(director WPI)

Ansgar Jüngel
(speaker DK)

Ulisse Stefanelli
(speaker SFB)

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Short Biography:

Rupert Klein received his doctorate in 1988 in mechanical engineering at the RWTH Aachen and then spent 2 years as a postdoc with Andrew Majda in Princeton. After his habilitation back in Aachen he was professor at the Bergische Universität Wuppertal before accepting a chair in scientific computing at the FU Berlin, with focus on modeling and simulation of global environment systems.

He also worked for many years for the Potsdam-Institute for Climate Impact Research, as deputy director and as head of the Data & Computation department.

His large field of research interests around the asymptotic analysis and numerics of multi-scale dynamics is focussed on climate models including social (human) systems. Also, he works on electronic structures and in reactive gas dynamics in combustion (of car engines).

In 2003 he received the Leibniz award, the German equivalent to the Austrian Wittgenstein award. Other awards Klein received include a 3-year fellowship of the European Centre for Medium Range Weather Forecasts (ECMWF), Reading, UK.

He is member of the Berlin-Brandenburgischen Akademie der Wissenschaften and very active also in international cooperation projects (like the HYKE network).