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FAKULTÄT FÜR MATHEMATIK
Dekan Univ.–Prof. Dr. Harald Rindler

Einladung zur öffentlichen Defensio von

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Thema der Dissertation:

**Forcing: Larger cardinals in Cichon's diagram, and
PFA(S)[S]**

Abstract: Using proper forcing as a general theme, we outline two results: one in the area of set-theoretic topology, and the other in cardinal characteristics of the continuum.

The first result is the continuation of the investigation of topological properties after forcing with a coherent Souslin tree S over a model of $\text{PFA}(S)$ (the fragment of the Proper Forcing Axiom consistent with keeping S Souslin). In particular, we demonstrate that in such models every locally countable subspace of cardinality $< \mathfrak{c}$ in a compact Hausdorff space is σ -discrete. This work is part of F.D. Tall's programme to achieve the consistency of the metrizability of all hereditary normal manifolds of dimension >1 , and is closely related to earlier results of Z. Szentmiklossy.

The second result is the consistency of a new constellation in Cichon's diagram. Specifically, we show that the constellation given by

$$\aleph_1 = \mathfrak{d} = \text{cov}(\mathcal{N}) < \text{non}(\mathcal{M}) < \text{non}(\mathcal{N}) < \text{cof}(\mathcal{N}) < \mathfrak{c}.$$

is consistent with ZFC, where $\text{non}(\mathcal{M})$, $\text{non}(\mathcal{N})$, $\text{cof}(\mathcal{N})$, and \mathfrak{c} are given arbitrary values κ subject to $\kappa^\omega = \kappa$. This result is made via a proper creature forcing construction, which will be briefly outlined. This is joint work with M. Goldstern, J. Kellner and S. Shelah.

Prüfungssenat:

Univ.-Prof. Dr. Christian Krattenthaler (Vorsitz)
(Universität Wien)

O.Univ.-Prof. Sy-David Friedman
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Dipl.-Ing. MMag. Dr. Jakob Kellner, Privatdoz.
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Zeit: Freitag, 20. Februar 2015, 10:00 Uhr

Ort: Kurt Gödel Research Center, Room 101 , Währinger Straße 25, 1090 Wien