



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  $\sigma$ -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  $\kappa$  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:

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**Zeit:** Freitag, 20. Februar 2015, 10:00 Uhr

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