



KURT GÖDEL RESEARCH CENTER FOR MATHEMATICAL LOGIC

UNIVERSITÄT WIEN

1090 WIEN, WÄHRINGER STRASSE 25

O.UNIV.-PROF. DR. SY-DAVID FRIEDMAN



INVITATION

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(KGRC)

NS_{ω_1} SATURATED AND A Σ_4^1 -DEFINABLE WELLORDER ON THE REALS

Abstract:

The investigation of the saturation of the nonstationary ideal NS_{ω_1} has a long tradition in set theory. In the early 1970's K. Kunen showed that, given a huge cardinal, there is a universe in which NS_{ω_1} is \aleph_2 -saturated. The assumption of a huge cardinal has been improved in the following decades, using very different techniques, by many set theorists until S. Shelah around 1985 realized that already a Woodin cardinal is sufficient for the consistency of the statement “ NS_{ω_1} is saturated”.

Due to work of H. Woodin on the one hand and G. Hjorth on the other, there is a surprising and deep connection between definable wellorders of the reals and the saturation of NS_{ω_1} : In a universe with a measurable cardinal and NS_{ω_1} saturated, it is impossible to have a Σ_3^1 -wellorder. This leads naturally to the question whether there is a universe in which NS_{ω_1} is saturated and its reals have a Σ_4^1 -wellorder. In my talk I will outline a proof that this is indeed the case; assuming the existence of $M_1^\#$ there is a model with a Σ_4^1 -definable wellorder on the reals in which NS_{ω_1} is saturated.

This is joint work with Sy-David Friedman.

THURSDAY, MAY 11, 2017

Tea at 3:30pm in the KGRC meeting room (room 104)

Talk at 4:00pm in the KGRC lecture room (room 101)

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