# 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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# SOME RESULTS ABOUT THE HIGHER LEVELS OF THE WEIHRAUCH LATTICE

Abstract:

In the last few years Weihrauch reducibility and the ensuing Weihrauch lattice have emerged as a useful tool for studying the complexity of mathematical statements viewed as "problems" or multi-valued functions. This approach complements nicely the reverse mathematics approach, and has been very successful for statements which are provable in $\mathsf{ACA}_0$. The study the Weihrauch lattice for functions arising from statements laying at higher levels, such as $\mathsf{ATR}_0$, of the reverse mathematics spectrum is instead in its infancy. We will present some results (work in progress with my graduate student Andrea Cettolo).

In some cases we obtain the expected finer classification, but in other we observe a collapse of statements that are not equivalent with respect to provability in subsystems of second order arithmetic. This is in part due to the increased syntactic complexity of the statements. Our preliminary results deal with comparability of well-orderings, $\Sigma^1_1$-separation, and $\Delta^1_1$-comprehension.

**THURSDAY, APRIL 27, 2017**
Tea at 3:30pm in the KGRC meeting room (room 104)
Talk at 4:00pm in the KGRC lecture room (room 101)
GÖDEL RESEARCH CENTER
JOSEPHINUM, 1090 WIEN, WÄHRINGER STRASSE 25

http://www.logic.univie.ac.at/Research_seminar.html

**o.Univ.-Prof. Dr. Sy-David Friedman**