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Vera Fischer, PhD
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“Infinitary Combinatorics and Definability”

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Abstract: The cardinal characteristics of the continuum describe various combinatorial, topological, or measure theoretic properties of the real line. They are usually defined as the minimum size of a family of reals satisfying a certain property and take cardinal values between the first uncountable cardinal and the size of the real line. For example, by the Baire Category Theorem, the minimal size of a family of meager sets that covers the real line is an uncountable cardinal, which does not exceed the size of the continuum.

A major tool in the study of the cardinal characteristics of the real line is the method of forcing, which was introduced by Cohen to settle the Continuum Hypothesis. In this talk we will see how the study of some of the classical combinatorial cardinal characteristics of the real line, in particular the almost disjointness, bounding, dominating and splitting numbers, has prompted and influenced the development of some of our present day forcing techniques. Among those are the first appearance of creature forcing, a method of iteration known as matrix-iterations, as well as Shelah's template iteration technique. In addition, we will consider the existence of various nicely definable combinatorial objects on the real line in the presence of definable wellorders of the reals, which are low in the projective hierarchy, and large continuum, as well as various methods of forcing such wellorders.

We will conclude with stating some open questions.

**Mittwoch, 11. Mai 2016,
09:00 Uhr – 10:00 Uhr,**

**Fakultät für Mathematik,
Seminarraum 7, 2. OG.
Oskar-Morgenstern-Platz 1
1090 Wien**

Sy-David Friedman
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