

Tuesday 12.12.2017
Room F426**Konstanz****Women In Mathematics****True, false, independent:**
How the Continuum Hypothesis can be solved (or not)***Carolin Antos-Kuby***
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What is the size of the set of real numbers? The search for the answer to this question led the way to the development of one of the most productive and powerful techniques in modern set theory - the forcing technique. It was developed to find an answer to the question of the truth of the Continuum Hypothesis (CH), a statement that says that there is no infinite cardinality between that of the natural and the real numbers. The answer to this question is, in a nutshell: Some people think it is true, some think it is false, all know that it is independent and nowadays one could argue that it is all three at once.

To illustrate this answer I will focus on different models of set theory and how to construct them in a way that renders CH true or false. We will look at the constructible universe L that was build by Kurt Gödel and give an introduction to the forcing method. Forcing was developed to decide CH, but it is actually a general technique that allows one to build models suited to a vast varieties of set theoretic tasks. We will give an overview of the technical set-up of forcing and detail on how it can be used to build a model where CH is false. We conclude by considering the behavior of CH over a multitude of set-theoretic models created by forcing that decide CH in very different ways.

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