SALZBURG MATHEMATICS COLLOQUIUM
Winter 2021/2022

Robert Tichy (Graz)

„Linear recurrences, diophantine equations and polynomials"

November 11, 2021

Abstract:
The focus of the talk lies on diophantine equations involving linear recurring sequences. We start with a general introduction on arithmetic properties of linear recurrences, in particular with a discussion of k-term Fibonacci numbers and investigating the number of representations of integers as differences of such numbers. This involves tools from diophantine analysis such as Baker's theory of linear forms in logarithms, reduction techniques and classical algebraic number theory. In specific cases it is possible to compute all solutions of such equations. A second topic of the lecture is an extension of Pillai's problem which is a famous general setting of the classical Catalan problem. We present quantitative results in the case of general recurrences extending representations by powers. The final part of the lecture is devoted to recent joint work with Dijana Kreso on polynomial variants of Pillai's problem.

Thursday, **15:00-15:45**
Hörsaal 414, 1. Stock