universität wien
Fakultät für Mathematik

EINLADUNG

Mathematisches Kolloquium
und
Junior Kolloquium

Mittwoch, 14. Juni 2017

Sky Lounge

Arno van den Essen (Radboud Universiteit)

14:30 Uhr – Junior Kolloquium
„The remarkable sequence 1,1,1,1,1,1,…"

15.45 Uhr – Kaffeepause

16:15 Uhr – Vortrag
„Mathieu-Zhao spaces and the Jacobian Conjecture"

Anschließend vinum cum pane

Junior Kolloquium:
„The remarkable sequence 1,1,1,1,1,1,…"

Abstract:
To any sequence of numbers $a_0, a_1, a_2, \ldots$ one can associate its so-called generating function $S(x) := a + 0 + a_1 x + a_2 x^2 + \ldots$ and its n-th partial sums $S_n(x) := a_0 + a_1 x + a_2 x^2 + \cdots + a_n x^n$.

In this talk we will consider the generating functionand its n-th partial sums of the sequence $1,1,1,1,1,\ldots 1,1,1,1,1,\ldots$ and use then to deduce various surprising applications. This explains the title of this talk.

Vortrag:
„Mathieu-Zhao spaces and the Jacobian Conjecture"

Abstract:
The Jacobian Conjecture is one of the most famous open problems in mathematics. It asserts the following: if a polynomial map from complex n-space to itself is such that the determinant of the Jacobian matrix is a no-zero constant, then the map is invertible. It is a generalization of the corresponding well-known result from linear algebra. The problem is open for all n>1, inspite of the effort of many mathematicians in almost 80 years! Recently, in 2009 the Chinese mathematician Wenhua Zhao introduced a new concept in algebra, the so-called Mathieu subspace of a ring, which generalizes the notion of an ideal in a ring which was introduced by Emmy Noether in 1922.

In this talk we will introduce this new concept and illustrate it with several examples. Then we will show that the Jacobian Conjecture can be studied in the framework of these Mathieu-Zhao spaces and describe a chain of challenging conjectures, all implying the Jacobian Conjecture. This talk is aimed at a general mathematical audience.

Herwig Hauser
Christian Krattenthaler