



universität  
wien

Fakultät für Mathematik

EINLADUNG

**Mathematisches Kolloquium**  
und  
**Junior Kolloquium**

**Mittwoch, 10. Mai 2017, Sky Lounge**

**Phillip Griffiths** (IAS, Institute for Advanced Study)

14:30 Uhr – Junior Kolloquium

**„A Tale of Two Mathematicians It was the best of times... for mathematics”**

*15.45 Uhr – Kaffeepause*

16:15 Uhr – Vortrag

**„Hodge theory and Moduli“**

*Anschließend vinum cum pane*

**Junior Kolloquium: „A Tale of Two Mathematicians It was the best of times... for mathematics”**

**Abstract:**

This is the story of some of the mathematical work of two mathematicians, Jean Victor Poncelet and Niels Henrik Abel. They were contemporaries in the early 19th century who never met and who were not even aware of each other's work. However, between them Poncelet and Abel laid the cornerstones of the modern field of algebraic geometry, a field that is central to current work in geometry, arithmetic and theoretical physics. In this talk I will try to explain what each of them did, Poncelet in geometry and Abel in analysis, and how the fusion of their work revealed one of the deepest aspects of mathematics. This fusion is captured by an amazing property of playing billiards on a table formed by two ellipses.

**Vortrag: „Hodge theory and Moduli“**

**Abstract:**

The equivalence classes of smooth algebraic varieties  $X$  of a particular type form its moduli space  $M$ , and their study is a central problem in algebraic geometry. When  $X$  is of general type  $M$  exists and has a canonical compactification  $\bar{M}$  as a projective algebraic variety. Aside from a few classical cases (curves,  $K3$  surfaces, abelian varieties) very little is known about the boundary  $\partial M = \bar{M} \setminus M$  and the singular varieties  $X_0$  that corresponds to boundary points. In this talk we will explain how Hodge theory provides basic invariants of the  $X_0$ 's and in some early examples may be used to help understand geometrically the boundary structure of moduli.

Ludmil Katzarkov  
Christian Krattenthaler