

**FWF**

Der Wissenschaftsfonds.



Institut f. Analysis und Zahlentheorie

**Zahlentheoretisches Kolloquium**

Montag, 28. 11. 2016, 10:30 Uhr

Seminarraum Geometrie 1, Kopernikusgasse 24/4.Stock

## **Heights, bad reduction and ranks of abelian varieties over number fields**

**PROF. DR. FABIEN MEHDI PAZUKI**

(University of Copenhagen)

Abstract: Let  $A$  be an abelian variety over a number field  $K$ . We are interested in its group of  $K$ -rational points  $A(K)$ , which is finitely generated by the Mordell-Weil Theorem. We show how to provide an explicit upper bound on the rank of  $A(K)$  in terms of the height of  $A$  and the discriminant of  $K$ . The proof uses a new inequality between the height and bad reduction primes, which is obtained by combining a jacobian argument, a Bertini Theorem and the existence of unramified towers over certain quadratic number fields.

M. Widmer, R. Tichy