

# Gastvortrag

Freitag, 10. Jänner 2020  
Uhrzeit: 10:15 Uhr  
Hörsaal 415

Dong Quan Ngoc Nguyen  
University of Notre Dame

## Polynomial parametrization of algebraic groups over rings

### Abstract:

In 1938, Skolem asked a question as to whether the group  $SL_n(\mathbb{Z})$  is polynomially parametrized, i.e., there is an element  $A(x_1, \dots, x_d)$  in  $SL_n(\mathbb{Z}[x_1, x_2, \dots, x_d])$  such that every element in  $SL_n(\mathbb{Z})$  is of the form  $A(r_1, r_2, \dots, r_d)$  for some integers  $r_1, \dots, r_d$ . It was not until 2010 when Vaserstein positively answered this question. One can replace the ring of integers  $\mathbb{Z}$  by an arbitrary commutative ring  $R$ , and ask a similar question as to whether the group  $SL_n(R)$  is polynomially parametrized. I will discuss my recent result about the polynomial parametrization of  $SL_n(F_q[T])$ , where  $F_q[T]$  is the ring of polynomials over a finite field  $F_q$ , which can be viewed as a function field analogue of Vaserstein's result. I will also discuss my recent result in joint work with Michael Larsen (Indiana University) which generalizes Vaserstein's theorem to arbitrary number rings.

Eingeladen von Clemens Fuchs