# Oberseminar

# zur

# Algebra und Algebraischen Kombinatorik

# Dr. Ehud Meir

### (University of Aberdeen)

## The representation theory of the general linear groups over finite local rings

Let $k$ be a finite field. The complex representation theory of the groups $GL_n(k)$ was studied by Bernstein and Zelevinsky. Instead of studying the representation theory of each group separately, they studied them together using Harish-Chandra induction and restriction functors. This furnishes a structure of a positive self adjoint Hopf algebra (or PSH-algebra) on the direct sum of the character groups, and enables to reduce the representation theory of these groups to the study of the so called cuspidal representations and the representation theory of the symmetric groups.

In this talk I will describe a work towards an extension of this theory to the representation theory of $GL_n(R)$, where $R$ is a finite quotient of a discrete valuation ring (e.g. $R = \mathbb{Z}/p^r\mathbb{Z}$ or $k[x]/(x^r)$). The representation theory of such groups arise naturally when one studies representations of groups such as $GL_n(\mathbb{Z})$ and $GL_n(\mathbb{Z}_p)$ (the p-adic integers). I will explain why the direct generalization of the Harish-Chandra functors does not work, and what alternatives are conjectured to fill in this gap. This talk is based on a joint work with Tyrone Crisp and Uri Onn.

## Dienstag 02.02.2021

## ab 16:00 Uhr

## In StudIP, per BBB im e-a410

**Alle Interessierten sind herzlich eingeladen.**

**Institut für Algebra, Zahlentheorie
und Diskrete Mathematik**