

## Mathematical Colloquia

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**Monday, 04 November 2024**

17:15 h, lecture room B6 (ExWi)

**Prof. Dr. Peter Patzt, University of Oklahoma**

# Unstable cohomology classes of $SL_n \mathbb{Z}$ and Hopf algebras

**Abstract :** Group cohomology is a ubiquitous tool in modern mathematics. In particular, the group cohomology of  $SL_n \mathbb{Z}$  includes information about automorphic forms and Galois representations in number theory and about algebraic K-theory in topology. Much about the cohomology of  $SL_n \mathbb{Z}$  remains unknown. I will start with a survey about what is known on the rational group cohomology of  $SL_n \mathbb{Z}$ . Afterwards, I will report on the Hopf algebras, Avner Ash, Jeremy Miller, and I found in the direct sum of all cohomology groups of  $SL_n \mathbb{Z}$  for all  $n$  earlier this year. I will give a quick overview on Hopf algebras and explain what it implies for the rational cohomology of  $SL_n \mathbb{Z}$ .