

Topology Seminar

Søren Galatius

of Columbia University will be speaking on

Hopf algebra spectral sequences related to $K(\mathbb{Z})$ and the Grothendieck–Teichmüller group.

on February 3 at 4:30 in
MIT Room 2-131

The general linear group of the integers acts on the symmetric space $GL_n(\mathbb{R})/O(n)$, and the orbit space X_n can be regarded as a “moduli space of real tori”. The compactly supported cohomology of these spaces forms the E_1 page of a spectral sequence converging to the cohomology of $BK(\mathbb{Z})$, the one-fold delooping of the algebraic K -theory space. I will sketch how to construct a Hopf algebra structure on this spectral sequence, and how it maps to another spectral sequence of Hopf algebras, a version of the Connes–Kreimer Hopf algebra. In recent joint work with Brown, Chan, and Payne (2405.11528), we use this map of Hopf algebras to deduce lower bounds for the compactly supported cohomology of X_n and of \mathcal{A}_n , the moduli space of principally polarized abelian varieties.