

1138-55-165

**Henry Yi-Wei Chan** and **Ayelet Lindenstrauss\*** (alindens@indiana.edu). *The Topological Hochschild Homology of Maximal Orders in Simple Algebras over the Rationals.*

I will discuss a calculation of the homotopy groups of  $\mathrm{THH}(U)$  where  $U$  is a maximal order in a simple algebra over the rationals. In positive dimensions, these groups consist of torsion and so can be studied locally. For a maximal order  $A$  in a simple algebra over  $\mathbb{Q}_p$ , we show that the homotopy groups of  $\mathrm{THH}(A/p)$  can be simply expressed in terms of the Hochschild homology groups of  $A/p$ . That allows a calculation of the homotopy groups of  $\mathrm{THH}(A; A/p)$  using a spectral sequence of Morten Brun, from which the relevant torsion in the homotopy groups of  $\mathrm{THH}(A)$  can be calculated by comparisons with the known topological Hochschild homology of the center of  $A$  and of the valuation ring in a maximal unramified extension field of the center of the simple algebra within that algebra.

As in the case of number rings, the topological Hochschild homology groups for these maximal orders look somewhat similar to their Hochschild homology groups, but linearization induces the zero map in large enough dimensions. So this calculation shows that the classical Dennis trace map vanishes in high enough dimensions, but proposes a substitute to which the topological version of the Dennis trace could map nontrivially. (Received February 08, 2018)