1150-55-411 **Irina Bobkova**, **Eva Höning**, **Ayelet Lindenstrauss*** (alindens@indiana.edu), **Kate Poirier**, **Birgit Richter** and **Inna Zakharevich**. *The Loday Construction and the Reduced Higher Topological Hochschild Homology of* $\mathbf{Z}/p^m$.

For any (finite) simplicial set X and commutative ring or ring spectrum A, the Loday construction $L_X(A)$ is the internal tensor product $X \otimes A$. This generalizes the standard complex for Hochschild homology (for rings) or topological Hochschild homology (for spectra), which are the Loday construction on the minimal model of S^1. Using higher dimensional spheres gives higher Hochschild, or topological Hochschild, homology. Comparing Marcel Bökstedt's calculation of $\mathrm{THH}(\mathbf{Z}/p)$ with Morten Brun's calculation of $\mathrm{THH}(\mathbf{Z}/p^m)$ for $m > 1$, we observe that the latter is much bigger, and remains so if we take coefficients in $\mathbf{Z}/p$. It turns out that the reason is that for $m > 1$, $\mathrm{THH}(\mathbf{Z}/p^m; \mathbf{Z}/p)$ splits as a smash product over $H\mathbf{Z}/p$ of $\mathrm{THH}(\mathbf{Z}; \mathbf{Z}/p)$ with $\mathrm{THH}^{H\mathbf{Z}}(\mathbf{Z}/p^m; \mathbf{Z}/p)$, where the latter is a spectrum version of Shukla homology—a splitting into the 'topological part' and the 'algebraic part'. This splitting definitely does not occur when $m = 1$. Moreover, we define a spectrum version of higher Shukla homology, and show that such splittings persist for higher Hochschild homology $\mathrm{THH}^{[n]}(\mathbf{Z}/p^m; \mathbf{Z}/p)$, which we then calculate. (Received July 14, 2019)