1043-55-181 **Valentina Joukhovitski*** (`valya@umich.edu`), Department of Mathematics, University of Michigan, 530 Church Street, Ann Arbor, MI 48109. *Topological Modular Forms and Level Structures.*

Level structures have been around for quite a while. These appeared in arithmetic number theory and were heavily studied by number theorists some time ago. We will combine homotopy theory and arithmetic number theory by looking at the topological modular forms, also known as tmf with level structures. Despite the well known nature of level structures on algebraic modular forms transition to homotopy theory is far from being smooth.

The aim of this presentation is to introduce the construction of topological modular forms with p^n-level structures, $tmf(p^n)$ and discuss the motivation for study of such complicated object. (Received August 26, 2008)