1046-55-1845   **Valentina Joukhovitski*** (`valya@umich.edu`), Department of Mathematics, University of Michigan, 530 Church Street, Ann Arbor, MI 48109. *Level structures, Igusa tower and topological modular forms.*

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. In homotopy theory level structures were used Matthew Ando to construct power operations om MU. We will fuse homotopy theory with arithmetic number theory by constructing a spectrum of topological modular forms with level structures. despite the well known nature of level structures in number theory, transition to homotopy theory is far from being smooth.

The aim of the presentation is to introduce construction of topological modular forms with specific level structures, $tmf(p^n)$ and discuss the motivation for the study of such an object. (Received September 16, 2008)