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Recently, Ando, Hopkins and Rezk were able to produce the String orientation of topological modular forms in a purely homotopical way. Using their ideas, one can classify the components of the space of  $E_\infty$  complex orientations of Morava height one theories. These methods involve understanding the theory of  $p$ -adic analysis on the  $p$ -adic integers. However, the current arguments are not sensitive to the Morava stabilizer group of higher height or the Hecke operators of Ando, Hopkins, Strickland and Rezk.

In this talk we will discuss the current situation for extending this work to height two Morava theories. We will present the method for attacking the problem and the ingredients. These methods ascend, on the surface at least, to any finite height. (Received August 28, 2009)