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**Barry John Walker\***, 415 Howard Street, Apartment 713, Evanston, IL 60202. *Orientations and  $p$ -adic Analysis.*

Producing operations in Lubin-Tate cohomology theories via finite subgroups of a universal deformation has been fruitful. For example, Ando, Hopkins and Strickland have used this approach to show that the sigma orientation for elliptic spectra is an  $H_\infty$  map. More generally, they were able to classify all orientations of this type for elliptic spectra via formal group data.

In more recent work, Ando, Blumberg, Gepner, Hopkins and Rezk have shown that the sigma orientation factors through an  $E_\infty$  map whose target is the connective version of topological modular forms. This result follows from their classification of such morphisms. This stronger result involves families of modular forms that enjoy Kummer type congruences.

All of these methods apply to complex K-Theory. For the height one situation, the sequence of modular forms is replaced by a sequence of rationals. In this talk we will use the language of  $p$ -adic analysis and work of N. Katz to show that any  $H_\infty$  orientation for  $p$ -adic K-Theory is an  $E_\infty$  map. (Received September 17, 2008)