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Hood Chatham* (hood@mit.edu). *An Orientation Map for Height $p - 1$ Real E theory.*

Let p be an odd prime and let $EO = E_{p-1}^{hC_p}$ be the C_p fixed points of height $p - 1$ Morava E theory. We say that an even spectrum X has algebraic EO theory if the splitting of $K_*(X)$ as a $K_*[C_p]$ -module lifts to a topological splitting of $EO \wedge X$. We develop criteria to show that a spectrum has algebraic EO theory, in particular showing that any connective spectrum with mod p homology concentrated in degrees $2k(p - 1)$ has algebraic EO -theory. As an application, we answer a question posed by Hovey and Ravenel by producing a unital orientation $MY_{4p-4} \rightarrow EO$ analogous to the MSU orientation of KO at $p = 2$. (Received August 16, 2019)