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**Paul Gustafson\*** (pgustafs@math.tamu.edu), **Eric Rowell** and **Yuze Ruan**. *Classifying even metaplectic modular categories via gauging*. Preliminary report.

A metaplectic modular category is a unitary modular category with the fusion rules of  $SO(N)_2$  for some positive integer  $N$ . These categories provide some of the simplest non-trivial examples of gauging. In particular, any metaplectic modular category  $SO(N)_2$  with  $N$  odd is a gauging of the particle-hole symmetry of a  $\mathbb{Z}_N$ -cyclic modular category.

The even  $N$  case is more complicated. In particular, the structure of these categories depends on the greatest power of 2 dividing  $N$ . Bruillard, Gustafson, Plavnik, and Rowell recently gave a characterization for the  $4 \mid N$  case parallel to the odd case. In this talk, we provide evidence for an alternative characterization when  $N$  is a power of 2. We conjecture every metaplectic modular category  $SO(2^k)_2$  for  $k \geq 4$  is a  $\mathbb{Z}_2$ -gauging of a metaplectic modular category  $SO(2^{k-2})_2$ . If  $k < 4$ , the metaplectic modular category  $SO(2^k)$  is also a  $\mathbb{Z}_2$  gauging of a one of a few simple modular categories. (Received January 21, 2018)