1155-55-564 **Agnes Beaudry**, **Irina Bobkova*** (ibobkova@math.tamu.edu), **Michael Hill** and **Vesna Stojanoska**. *Invertible modules at chromatic height 2 and $p = 2$.*

For Morava E-theory E_n and a finite subgroup F of the Morava stabilizer group, the spectrum E_n^{hF} is periodic and the Picard group of the category of modules over the ring spectrum E_n^{hF} contains the cyclic subgroup generated by ΣE_n^{hF}. In most known examples, the Picard group is found to be precisely this cyclic group. However, at chromatic height $n = 2$ and $p = 2$, the Picard group of the category of $E_2^{hC_4}$-modules is not cyclic and contains an extra element of order 2. I will describe the tools we use to compute this Picard group: a group homomorphism from $RO(C_4)$ to it and the Picard spectral sequence. This talk is based on joint work with A. Beaudry, M. Hill and V. Stojanoska. (Received January 21, 2020)