1125-11-1662 **Chad Awtrey*** (cawtrey@elon.edu), **Jim Beuerle** and **Jade Schrader**. *Constructing Galois 2-extensions of the 2-adic numbers.*

Let $\mathcal{K}^G$ denote the set of isomorphism classes of Galois extensions K of the 2-adic numbers whose Galois group is some 2-group G. Using the work of Yamagishi in 1995, it is possible to determine the size of $\mathcal{K}^G$. In this talk, we show how to compute a defining polynomial associated to each class. The algorithm makes use of subfields of index two; including their Galois groups and their quadratic extensions. We end with an application of our algorithm to classifying the 251 Galois 2-adic fields of degree 16. (Received September 18, 2016)