1163-55-131 **Justin Michael Curry***, 1400 Washington Ave., Albany, NY 12222, and **Jordan T DeSha**, 1400 Washington Ave., Albany, NY 12222. *Counting Problems in Persistence.*

This talk will begin with a review of elementary constructions in topological data analysis (TDA), such as merge trees and the Elder Rule, which is the procedure for determining a barcode/persistence diagram from a merge tree. Previous work on how many merge trees determine the same barcode will be reviewed. The talk will conclude with recent combinatorial results obtained with Jordan DeSha and others on counting embedded spheres with the same level-set barcode and other combinatorial problems pertinent to persistent homology. (Received August 19, 2020)