

1096-55-1361 **Elizabeth Munch*** (liz@ima.umn.edu). *Extending Statistical Methods to Computational Topology.*

The past decade has seen great strides in the theoretical aspects of Computational Topology, particularly with the use of Persistent Homology. As the theory grows deeper, so too does the number of interesting applications for the theory, including protein structure, neuroscience, orthodontia, gene expression, and signal analysis. Since these new applications come with large and noisy data sets, care must be taken to define the "average" topological features. In this talk, we will discuss methods for defining the mean of a set of persistence diagrams, and how this can be used to better understand the structure of large and noisy data sets. This work is joint with Katharine Turner, Paul Bendich, Sayan Mukherjee, Jonathan Mattingly, and John Harer. (Received September 15, 2013)