1146-54-218 **Anna Schenfisch***, annaschenfisch@montana.edu. *Topological Data Analysis; shape reconstruction and multiparameter persistence.*

Topological Data Analysis (TDA) is an emerging field with applications in areas as diverse as biology, engineering, and material science, among others. By viewing data as a shape in space, we can use the tools of topology to understand the data in a richer way than previously possible. In this talk, we first give an overview of some foundational TDA ideas, such as filtrations and persistent homology. We then give an example of a specific application - shape reconstruction in both planar graphs and higher dimensional simplicial complexes. Finally, we consider how the height filtrations used in shape reconstruction might be extended to multiparameter filtrations, ending with an exploration of developing a further understanding of multiparameter filtrations, a topic with many unanswered questions. (Received January 22, 2019)