1154-54-323   **H. Zhang*** (`zhanghon@grinnell.edu`) and **A. Ledesma Alonso** (`ledesmaa@grinnell.edu`).
Artworks and Articles Meet Mapper and Persistent Homology.

Since its recent birth, topological data analysis (TDA) has proven to be a very useful tool when studying large and high-dimensional data sets. In this talk, we present our application of two TDA tools, persistent homology and the Mapper algorithm, to the Metropolitan Museum of Art (MET) data set and two scholarly literature databases: arXiv and Google Scholar. For the MET data, we use the Mapper Algorithm to guide feature selection in building a logistic regression model for classifying public-domain and non-public-domain artworks. Then we use persistent homology to help differentiate between certain collections of artworks. For the arXiv data, we use persistent homology to derive a general sense of the shape of the data. With help of the Mapper Algorithm, we further explore the point cloud by analyzing trends and features in visualizations. For the Google Scholar data, we find that there are interesting correlations between academic category, number of pages, number of references, and published date time of a paper. (Received September 01, 2019)