

Bipath Persistent Homology and Its Stability.

Persistent homology is one of the main tools in topological data analysis. It captures the persistence of topological features (e.g., connected components, holes, cavities, or higher dimensional holes) by a collection of intervals, called the persistence diagram. This tool allows us to study hidden structures in the data and has been applied in various fields including material science, the field of evolutionary biology, and others.

In this talk, we introduce the stability result on bipath persistent homology with respect to bipath functions on a topological space. This theorem suggests a stability of bipath persistence diagrams: small changes in a bipath function (except at their ends) result in only small changes in the bipath persistence diagram.