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Lori Beth Ziegelmeier* (lziegel1@macalester.edu), 1600 Grand Avenue, Saint Paul, MN 55105. *A Complete Characterization of the 1-Dimensional Intrinsic Cech Persistence Diagrams for Metric Graphs.*

Metric graphs are special types of metric spaces used to model and represent simple, ubiquitous, geometric relations in data such as biological networks, social networks, and road networks. We are interested in giving a qualitative description of metric graphs using topological summaries. In particular, we provide a complete characterization of the 1-dimensional intrinsic Cech persistence diagrams for finite metric graphs using persistent homology. Together with complementary results by Adamaszek et al., which imply results on intrinsic Cech persistence diagrams in all dimensions for a single cycle, our results constitute important steps toward characterizing intrinsic Cech persistence diagrams for arbitrary finite metric graphs across all dimensions. This is joint work with Ellen Gasparovic, Maria Gommel, Emilie Purvine, Radmila Sazdanovic, Bei Wang, and Yusu Wang. (Received September 26, 2017)