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Woojin Kim* (kim.5235@osu.edu) and **Facundo Mémoli**. *Spatio-temporal persistent homology for dynamic metric spaces.*

We study the problem of characterizing the time evolution of dynamic metric spaces within the framework of topological data analysis. Popular instances of dynamic metric spaces include flocking/swarming behaviors in animals and social networks in the human sphere. We will discuss (1) how to induce multiparameter persistent homology as a topological summary of dynamic metric spaces, and (2) how to express the stability of this summarization process. In order to address stability, we define a new distance between dynamic metric spaces which extends the standard Gromov-Hausdorff distance on metric spaces. Also, we propose poly-time algorithms for the classification of dynamic metric spaces. A preprint with these results is available on <https://arxiv.org/abs/1812.00949>. Some demos are available in <https://research.math.osu.edu/networks/formigrams/>. (Received September 05, 2019)