1135-18-526   **Anastasios Stefanou*** (`astefanou@albany.edu`), **Vin de Silva** (`vin.desilva@pomona.edu`) and **Elizabeth Munch** (`muncheli@egr.msu.edu`). *Interleavings on categories with coherent* $[0, \infty)$*-action.*

The interleaving distance is a powerful tool in TDA which has been shown to provide a metric for such topological signatures as persistence diagrams and Reeb graphs. In this talk we generalize the idea of interleavings to a broader class of objects, namely categories with coherent $[0, \infty)$-action. This allows us to show that many commonly used distances, such as the L_∞-distance and the Hausdorff metric, are in fact special cases of interleaving distances. In addition, there is a natural way to define morphisms between these categories that generalizes the stability results of TDA to a broad class of objects by showing that the morphisms are 1-Lipschitz. (Received September 07, 2017)