

Applied Topology in Albany (ATiA) Seminar

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ABSTRACT. Motivated both by theoretical and practical considerations in topological data analysis, we generalize the p -Wasserstein distance on barcodes to multi-parameter persistence modules. For each $p \in [1, \infty]$, we in fact introduce two such generalizations $d_{\mathcal{I}}^p$ and $d_{\mathcal{M}}^p$, such that $d_{\mathcal{I}}^{\infty}$ equals the interleaving distance and $d_{\mathcal{M}}^{\infty}$ equals the matching distance. These distances turn out to have several good properties. We use them to study the continuity of (2-parameter) multicover persistent homology, revealing nuances to the stability theory for multicover persistence which are not seen by the interleaving distance. This is joint work with Michael Lesnick.