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Ashleigh Thomas* (althomas41@gmail.com), **Surabhi Beriwal** and **Ezra Miller**. *Multirank functions for comparing multiparameter persistence modules.*

Persistent homology extracts topological and geometric features from data and stores that information in persistence modules, which are covariant functors from posets to the category of vector spaces. To compare persistence modules and ultimately perform statistical analysis, we construct pseudometrics on the space of persistence modules based on information from module invariants. For example, for single-parameter persistence there are bottleneck and rank pseudometrics, which are based on two (equivalent) complete module invariants: the module's decomposition into a direct sum of indecomposables; and the rank function, which records the ranks of the module's structure morphisms.

We introduce multirank functions – extensions of the rank function – as invariants of multiparameter persistence modules and define multirank pseudometrics based on Robins and Turner's rank pseudometric. (Received February 20, 2018)