

Applied Topology in Albany (ATiA) Seminar

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CECH'S CLOSURE SPACES FOR APPLIED TOPOLOGY

Friday, April 9th, 2021
2:00 p.m. on Zoom

ABSTRACT. We use Cech's closure spaces, also known as pretopological spaces, to develop a uniform framework that encompasses persistent homology, discrete homology of metric spaces, singular homology of topological spaces, homology of (directed) clique complexes, along with their respective accompanying homotopy theories. We have several homology and homotopy theories of closure spaces, which we show satisfy analogues of classical results in algebraic topology. Our framework also allows us to construct a bridge between continuous and discrete aspects of applied topology. This is joint work with Peter Bubenik.