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An introduction to topological data analysis for lattice field theory

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Topological data analysis (TDA) is a powerful and flexible data analysis toolset that provides computational methods for extracting and quantifying non-local topological features in data. I will give an introduction to one of the main tools in TDA - persistent homology - with a view towards applications to lattice field theory configuration data. The input is a geometric data structure called a *filtered complex* which functions as a lens in determining what kinds of structures the method can detect. The output is a data structure called a *persistence diagram* that I will explain how to interpret and work with.

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