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Gunnar Erik Carlsson* (gunnar@math.stanford.edu), Department of Mathematics, Stanford University, Stanford, CA 94305. *Applications of persistent homology.*

Persistent homology has been shown to be a useful tool in studying qualitative properties of data sets. Sometimes this simply involves inferring topological properties of the space underlying a probability distribution (i.e. as the set of very dense points), but it can also involve some interesting constructions which gives other kinds of interesting information about the data sets, such as small holes and the dynamic analysis of clusterings as parameters change. We will sketch some of these ideas, and discuss the underlying algebraic topology. (Received August 20, 2007)