

1134-18-122

Vin de Silva* (vin.desilva@pomona.edu). *Reeb Graph Smoothing via Cosheaves*.

This talk concerns Reeb graphs and their category-theoretic interpretation as cosheaves over the real line. Following (de Silva, Munch, Patel; 2016), I will explain the correspondence between Reeb graphs and Reeb cosheaves, and use it to define a metric on the class of all Reeb graphs, as well as a 1-parameter semigroup of ‘smoothing’ operators that progressively simplify the topology of a given Reeb graph. These constructions are modelled, following (Bubenik, Scott; 2014), on analogous constructions originating in the theory of topological persistence. Finally, I will present an algorithm (de Silva, Smirnov, Yu; unpublished) that produces, in a single calculation, the description of the smoothings of a given Reeb graph at all possible parameter values. The ideas in this talk are the result of collaborations with Peter Bubenik, Jonathan Scott, Elizabeth Munch, Amit Patel, Dmitriy Smirnov and Song Yu. (Received August 28, 2017)