

# RIPS MAGNITUDE

DEJAN GOVC

Magnitude [1] is a numerical invariant of metric spaces (and more generally, enriched categories [4]) introduced by Tom Leinster which has been shown to arise as the graded Euler characteristic of a certain homology theory [3]. Richard Hepworth has recently suggested to examine an analogous invariant for persistent homology, called Rips magnitude, which arises as a graded Euler characteristic of persistent homology. In the talk I will describe some of its basic properties and examine its asymptotic behaviour in the case of finite subsets of the circle, using a result of Adamaszek [2].

## REFERENCES

- [1] T. Leinster & M. Meckes: *The Magnitude of a Metric Space: From Category Theory to Geometric Measure Theory*, Measure Theory in Non-Smooth Spaces (2017), 156–193.
- [2] M. Adamaszek: *Clique Complexes and Graph Powers*, Israel Journal of Mathematics, **196**, No. 1 (2013), 295–319.
- [3] R. Hepworth & S. Willerton: *Categorifying the Magnitude of a Graph*, Homology, Homotopy and Applications, **19**, No. 2 (2017), 31–60.
- [4] T. Leinster & M. Shulman: *Magnitude Homology of Enriched Categories and Metric Spaces*, arXiv preprint, arXiv:1711.00802.

(Dejan Govc) DEPARTMENT OF MATHEMATICAL SCIENCES, UNIVERSITY OF ABERDEEN, FRASER NOBLE 162, ABERDEEN AB24 3UE, UK

*E-mail address:* `dejan.govc@abdn.ac.uk`