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**Radmila Sazdanovic** and **Victor William Summers\*** ([vwsommer@ncsu.edu](mailto:vwsommer@ncsu.edu)), 7102 Plumleaf Road, Apt. 234, Raleigh, NC 27613. *Magnitude Homology: Structure and Torsion*.

Many mathematical constructions come equipped with a canonical measure of size; the cardinality of a set, Euler characteristic of a topological space, dimension of a vector space, to name just three. T. Leinster added magnitude of a metric space to the list of cardinality-like invariants. Graphs may be viewed as metric spaces with the shortest-path metric, and as such they have magnitude. R. Hepworth and S. Willerton went on to categorify the magnitude of graphs, realizing the power series invariant as the graded Euler characteristic of a bigraded homology theory; magnitude homology. In this talk I will begin by constructing magnitude homology and describing various properties of magnitude which lift to the level of homology. Then I will discuss some results on the existence and structure of torsion in magnitude homology. (Received September 25, 2018)