

## **Algebraic theory of topology**

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Andrew Ranicki was a major proponent of algebraic theories of topological problems—notably the algebraic theory of surgery and the algebraic theory of torsion. Algebraicization is extremely powerful, and part of its power can be seen from the difficulty in understanding geometrically some of its implications. One lens for considering such questions is the quantitative lens: understanding “sizes” in various ways of the geometric/topological objects whose existences are inferred. (The bounded category that Andrew was so fond of is a good example of the utility of such considerations, but it will not be the focus of our attention.). This talk will be about the extent to which Algebra is an oracle (i.e. it tells one things that are true that cannot be discovered on ones own) and to what extent it can be used as a guide for geometry (i.e. the extent to which the geometric objects have sizes predictable from algebraic considerations).