## Mathematics > Algebraic Topology

## Measuring Shape with Topology

## Robert MacPherson, Benjamin Schweinhart

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We propose a measure of shape which is appropriate for the study of a complicated geometric structure, defined using the topology of neighborhoods of the structure. One aspect of this measure gives a new notion of fractal dimension. We demonstrate the utility and computability of this measure by applying it to branched polymers, Brownian trees, and self-avoiding random walks.

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