

# Large scale geometry: what it is and what it is good for

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The philosophy of "large scale geometry", also called "coarse geometry" is: look at the space from really far away, so that all local features are blurred out, and concentrate on the features which remain. As an example: from this point of view Euclidean space and the integer lattice become equivalent.

Powerful tools from operator algebras have been developed to study these features. Combined with differential geometry and global analysis via the index theory of geometric differential operators this has applications to small scale geometric question. For example, it can help to understand which compact smooth manifolds admit a Riemannian metric of positive scalar curvature, a question which has relevance even in Einstein's general relativity.

The talk aims to give a gentle introduction to the subject, getting to some of the most interesting differential geometric examples.