AB Geometrie & Topologie
Dr. Christian Lange
Jonas Beyrer

Riemannian Geometry II

WiSem 2025/26

as of 3. Oktober 2025

The lecture is a continuation of the Riemannian geometry class taught in the summer semester 2025.

We will explore relations between local properties – especially the curvature – of a Riemannian manifold and its global shape, in particular, by means of comparison geometry. The global shape expresses itself for instance in geometric quantities like the diameter, in topological properties and in the presence of symmetries. This will also lead us to the study of Lie groups and symmetric spaces.

For master students of mathematics or physics.

Prerequisites: Riemannian Geometry basics as taught in the Riemannian Geometry I class (enrollment key "Riemann").

Time: Wed 14:15 - 16:00 in B 040 & Thu 8:30 - 10:00 in B 252,
Tutorial: Tue 14:15 - 16:00 in B040

References:

M. Do Carmo, *Riemannian Geometry*, Birkhäuser, 1992
W. Ballmann, *Lectures on Differential Geometry*
B. O'Neill, *Semi-Riemannian Geometry*, Academic Press, 1983
J. Cheeger and D. G. Ebin, *Comparison theorems in Riemannian Geometry*, AMS, 2008
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To participate please register in Moodle (enrollment key "Riemann").