

Seminar Advanced Differential Geometry

Metric geometry

winter term 2025/26

Monday 11:15 – 12:45 Augusteum A 314; Start: Tuesday, October, 13

Please enrol in **Moodle****students:**

- mathematics (diploma, M:Sc.) it is a compulsory elective course in the mathematics program (10-MAT-MM2GEO).
- mathematical physics (M.Sc.), it is a compulsory elective course in the mathematical physics program (10-MAT-MPDG1, 10-MAT-MPHSG).

Topics:

Metric geometry generalizes geometric concepts known from differential geometry to metric spaces without assumptions about the smoothness of objects. This includes spaces which are limits of smooth Riemannian manifolds.

Reference:

D.Burago, Y.Burago, S.Ivanov: A course in metric geometry, Grad.Studies Math. 33, Amer.Math.Soc. 2001
(available from the authors' homepage)

List of talks:

1. Metric spaces, ch. 1, p. 1-24
2. Length spaces, ch. 2, p. 25-58
3. Constructions, ch. 3, p. 59-88
4. Spaces of bounded curvature, ch. 4, p. 101-134
5. Space of metric spaces, ch. 7, 241-270
6. Large scale geometry, ch. 8, 271-306
7. Spaces of curvature bounded above, ch. 9, p. 307-350 (2 talks)
8. Spaces of curvature bounded below, ch. 10, p. 351-400 (2 talks)