Reading list

Alexandrov geometry, RCD spaces, and metric-valued analysis

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PKU School 2026

Works cited in the lecture series

1. D. Burago, Y. Burago, S. Ivanov. *A Course in Metric Geometry*. Graduate Studies in Mathematics, vol. 33, American Mathematical Society.

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3. A. Petrunin. *Parallel transportation for Alexandrov space with curvature bounded below*. Geometric and Functional Analysis, 8 (1998), 123–148.

4. A. Petrunin. *Semiconcave functions in Alexandrov's geometry*. In: Surveys in Differential Geometry, vol. XI.

5. G. Perelman. *DC structure on Alexandrov space*. Preprint, 1994.

6. L. Ambrosio, J. Bertrand. *DC calculus*. Mathematische Zeitschrift, 288 (2018), 1037–1080.

7. N. Gigli. *De Giorgi and Gromov working together*. Preprint, arXiv:2306.14604.

8. L. Ambrosio. *Calculus, heat flow and curvature-dimension bounds in metric measure spaces*. In: Proceedings of the International Congress of Mathematicians (ICM) 2018.

9. H.-C. Zhang, X.-P. Zhu. *Yau's gradient estimates on Alexandrov spaces*. Journal of Differential Geometry, 91 (2012), 445–522.

10. H.-C. Zhang, X.-P. Zhu. *Local Li-Yau's estimates on RCD*(K,N) metric measure spaces*. Calculus of Variations and Partial Differential Equations, 55 (2016), Art. 93.

11. R. Jiang, H. Li, H.-C. Zhang. *Heat kernel bounds on metric measure spaces and some applications*. Potential Analysis, 44 (2016), 601–627.

12. Y. Peng, H.-C. Zhang, X.-P. Zhu. *Weyl's lemma on RCD(K,N) metric measure spaces*. Calculus of Variations and Partial Differential Equations, 64 (2025), 1–23.

13. N. Korevaar, R. Schoen. *Sobolev spaces and harmonic maps for metric space targets*. Communications in Analysis and Geometry, 1, 3–4 (1993), 561–659.

14. J. Jost. *Equilibrium maps between metric spaces*. Calculus of Variations and Partial Differential Equations, 2, 2 (1994), 173–204.

15. N. Gigli, A. Tyulenev. *Korevaar–Schoen's energy on strongly rectifiable spaces*. Calculus of Variations and Partial Differential Equations, 60, 6 (2021), Paper No. 235.

16. H.-C. Zhang, X.-P. Zhu. *Lipschitz continuity of harmonic maps between Alexandrov spaces*. Inventiones Mathematicae, 211, 3 (2018), 863–934.

17. H.-C. Zhang, X.-P. Zhu. *Boundary regularity of harmonic maps from RCD(K,N)-space to CAT(0)-space*. Science China Mathematics, 54 (2024), 2041–2058.

18. H.-C. Zhang, X.-P. Zhu. *Optimal boundary regularity of harmonic maps from RCD(K,N)-space to CAT(0)-space*, 2025. To appear in Communications in Analysis and Geometry.

19. H.-C. Zhang, X.-P. Zhu. *Lipschitz regularity of harmonic map heat flows into CAT(0) spaces*. arXiv:2601.20579, 2026.

20. B. X. Han, H.-C. Zhang, X.-P. Zhu. *Lipschitz regularity of harmonic map heat flows from RCD spaces into CAT(0) spaces*. arXiv:2608.03442, 2026.

21. Y. Liu, H.-C. Zhang, X.-P. Zhu. *Boundary regularity of harmonic map heat flows from RCD spaces into CAT(0) spaces*. arXiv:2609.13652.