Geometric and functional inequalities on Finsler manifolds: sharpness and rigidity

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In this talk, we present recent results on geometric and functional inequalities on Finsler manifolds. Under mild assumptions on reversibility and on flag and S-curvatures, we establish various Sobolev-type inequalities on non-compact Finsler manifolds. Special emphasis is put on the sharpness of such inequalities as well as certain geometric rigidity phenomena. Talk based on papers [1]-[3].

References

[1] Z.M. Balogh, A. Kristály, Sharp isoperimetric and Sobolev inequalities in spaces with nonnegative Ricci curvature. Math. Ann. 385 (2023), no. 3-4, 1747–1773.

[2] L. Huang, A. Kristály, W. Zhao, Sharp uncertainty principles on general Finsler manifolds. Trans. Amer. Math. Soc. 373 (2020), no. 11, 8127–8161.

[3] A. Kristály, A. Mester, I. Mezei, Sharp Morrey-Sobolev inequalities and eigenvalue problems on Riemannian-Finsler manifolds with nonnegative Ricci curvature. Commun. Contemp. Math. 25 (2023), no. 10, Paper No. 2250063, 27 pp.