哈爾濱工業大學 数学研究院
Institute for Advanced Study in Mathematics of HIT

2025 泛函分析及空间理论
天元暑期研讨班

Construction of curved Kakeya sets

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Abstract
A spherical Kakeya set is a subset of R^n of zero Lebesgue measure that contains a sphere of every radius. Kolasa-Wolff (1999) proved the existence of spherical Kakeya sets by applying a BRK-type construction. We generalise their construction to $C^{2,alpha}$ hypersurfaces of nonzero Gaussian curvature. Moreover, we are able to improve the measure bound of such curved Kakeya sets; in particular, this bound is optimal in $n = 3$ up to constant multiples. This is joint with Xianghong Chen and Yue Zhong.

Time: Sunday, August 10, 2025, 10:00-11:00 (UTC+8)
Venue: Zheng Xin Building, Room 24
Zoom ID: 921 3194 4196 (Password: 0810)
Link: https://zoom.us/j/92131944196?pwd=qQYSPLWsZCAc8PJoN6849pGMTLgs6L.1

More information:
https://im.hit.edu.cn/2025/0518/c8386a370276/page.htm