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Locally conformally flat manifolds with nonnegative scalar curvature

2. Dezember 2025– 16:15 Uhr
Raum 7.530

Abstract: In 1994, M. J. Gursky asked whether a closed, oriented, locally conformally flat manifold M^n with positive scalar curvature must be conformally equivalent to the round sphere, provided that its first homology group vanishes. In this talk, we give a negative answer to Gursky's open question by showing that the Hausdorff dimension of the limit set of $\pi_1(M)$ lies in the interval $[1, (n-2)/2)$ when $\pi_1(M)$ is torsion-free. If time permits, we will also discuss rigidity results for locally conformally flat manifolds with scalar-flat metrics.

