Academy of Mathematics and Systems Science, CAS
Colloquia & Seminars

Speaker: Shi-Zhong Du，Shantou University

Inviter: Nguyen Quoc Hung

Title: On Bernstein Theorem of Affine Maximal Hypersurface

Language: Chinese&English

Time & Venue: 2023.04.06 10:30-11:30 南楼N913

Abstract:

Bernstein problem for affine maximal type hypersurfaces has been a core problem in affine geometry. A conjecture proposed firstly by Chern (Proc. Japan-United States Sem., Tokyo, 1977, 17-30) for entire graph and then reformulated by Calabi (Amer. J. Math., 104, 1982, 91-126) to its fully generality asserts that any Euclidean complete, affine maximal type, locally uniformly convex C^4-hypersurface in R^{N+1} must be an elliptic paraboloid. Soon after, the Chern's conjecture was solved completely by Trudinger-Wang (Invent. Math., 140, 2000, 399-422) for dimension N=2 and \theta=3/4. At the same time, it was conjectured by Trudinger-Wang (see also two survey papers by Trudinger [38,39] for the details) that the Bernstein property of the affine maximal hypersurfaces should hold on lower dimensional spaces and fail to hold for higher dimensional cases. On the past twenty years, much efforts were done toward higher dimensional issues but not really successful yet, even for the case of dimension N=3. In this talk, we will present some known results and new results for the problem.

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