Undergraduate

Analysis Seminar

Symmetry of hypersurfaces and the Hopf Lemma

Yanyan Li
Rutgers University

Date: April 28, 2022

Time: 10:00 am

Acesso à sala virtual: Zoom
https://us02web.zoom.us/j/86589141570pwd=aTBKSHVhMjBhaGlVV1VEN0l4cU5RQT09

Abstract. For a connected n-dimensional compact smooth hypersurface M without boundary embedded in a $(n+1)$-dimensional Euclidean space, a classical result of A. D. Alexsandrov shows that it must be a sphere if it has constant mean curvature. Nirenberg and I studied a one-directional analog of this result: if every pair of points $(x', a), (x', b) \in M$ with $a < b$ has ordered mean curvature $H(x', b) \leq H(x', a)$, then M is symmetric about some hyperplane $x_{n+1} = c$ under some additional conditions. A conjecture of theirs was recently proved in a joint work with Xukai Yan and Yao Yao. These works and some open problems will be presented in this talk.