METU Mathematics General Seminar

Convexity and embedding problems for 3-manifolds

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Abstract

Given a closed, orientable 3-manifold, it is of great interest but often a difficult (and largely open) problem to determine whether the 3-manifold smoothly embeds in 4-dimensional Euclidean space. On the other hand, under additional geometric considerations coming from symplectic topology, such as hypersurfaces of contact type, the problem becomes tractable and in certain cases a uniform answer is possible. In this talk, I will review these concepts and recent results and explain how they relate to the various complex analytic notions of convexity such as pseudoconvexity and rational convexity. I will also report on recent work in progress that extends our results to symplectic 3-manifolds other than the Euclidean space, such as rational surfaces.

Date: Thursday, 21 May 2026
Time: 15:40
Place: Gündüz İkeda Seminar Room