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SIPo (Seminario de Investigadores Postdoctorales)

Speaker: Ana Trujillo (CMM)

Title: Tree Embedding Problem for Digraphs.

Abstract:
The \textit{tree embedding problem} focuses on identifying the minimal conditions a graph G must satisfy to ensure it contains all trees with k edges. Here, a graph G consists of a set V of elements called vertices, and a set E of (unordered) pairs of vertices, called edges. We say that a graph G is a tree if, for any pair of vertices, there is exactly one path connecting them.

Erd\H{o}s and Sós conjectured that any graph G with n vertices and more than $(k-1)n/2$ edges contains every tree with k edges. This conjecture has been generalized into the Antitree Conjecture by Addario-Berry et al., which states that every digraph D with n vertices and more than $(k-1)n$ arcs contains every antidirected tree with k arcs. Here, a digraph D consists of a set V of vertices and a set A of arcs (ordered pairs of vertices), and an antidirected tree is a tree in which the edges are directed so that each vertex has only incoming or outgoing arcs.

In this talk, we present a proof of the Antitree Conjecture for the case where the digraph D does not contain certain orientations of the complete bipartite graph $K_{2,s}$, where $s = k/12$. Additionally, we explore a proof of this conjecture for antidirected caterpillars. This work is a collaboration with Maya Stein.mitted).

Date: 21/10/2024 a las 14:30 hrs.

Venue: John Von Neumann Seminar Room, CMM, Beauchef 851, North Tower, 7th Floor