

How 'few' real zeros a random fewnomial system have?

Josué Tonelli-Cueto

Johns Hopkins University

Solving polynomial systems of equations is at the center of many applications. When doing so, we are mainly interested in the real solutions of such a system. Moreover, unlike general systems, systems in applications tend to have just a few terms: they are fewnomial systems. Hence, to understand the computational hardness of solving systems in practice, we must answer how many solutions a 'typical' fewnomial system has. In this talk, we approach this question from a probabilistic standpoint. This is joint work with Elias Tsigaridas, and with Alperen A. Ergür and Maté L. Telek.

In Special Session 41 on Algebraic Geometry: the Numerical, the Random and the Tropical at the Mathematical Congress of the Americas 2025.