The SUMO Speaker Series for Undergraduates

Low-degree polynomials and error-correcting codes

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Abstract

Low degree polynomials don't have too many roots. For example, a quadratic polynomial has at most two roots, a cubic polynomial has at most three, and so on. While this fact may not seem so exciting, in fact it's at the root (pun totally intended) of many constructions of error correcting codes, which are a fundamental tool for applications in communication, storage, and experimental design. In this talk, we'll see why it's a really good thing that low-degree polynomials don't have too many roots!

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