Mathematics, Statistics, and Computer Science   **@ UIC**

Algebraic Geometry Seminar

Tensor Ranks and Matrix Multiplication Complexity

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Abstract: Tensors are just multi-dimensional arrays. Notions of ranks and border rank abound in the literature. Tensor decompositions also have a lot of application in data analysis, physics, and other areas of science. I will try to give a colloquium-style talk surveying my recent two results about tensor ranks and their application to matrix multiplication complexity. The first result relates different notion of tensor ranks to polynomials of vanishing Hessian. The second one computes the border rank of 3 X 3 permanent. I will also briefly discuss the newest technique we used to achieve our results: border apolarity. This talk assumes little background in geometry or algebra.

Monday, November 8 at 3:00 PM in Zoom