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

Computer Science Seminar

Complete Derandomization of Identity Testing of Read-Once Formulas

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Abstract: In this paper we study the identity testing problem of arithmetic read-once formulas (ROF) and some related models. A read-once formula is formula (a circuit whose underlying graph is a tree) in which the operations are $\{+, \times\}$ and such that every input variable labels at most one leaf. We obtain the first polynomial-time deterministic identity testing algorithm that operates in the black-box setting for read-once formulas, as well as some other related models. As an application, we obtain the first polynomial-time deterministic reconstruction algorithm for such formulas. Our results are obtained by improving and extending the analysis of the algorithm of Shpilka-Volkovich 09'.

Joint work with Daniel Minahan.

Monday, February 27 at 2:00 PM in SEO 612