Algebra
Seminar

Linear and rational factorization of tropical polynomials

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Abstract: Already for bivariate tropical polynomials, factorization is an NP-Complete problem. In this talk, we will introduce a rich class of tropical polynomials in n variables, which admit factorization and rational factorization into well-behaved factors. We present efficient algorithms of their factorizations with examples. Special families of these polynomials have appeared in economics, discrete convex analysis, and combinatorics. Our theorems rely on an intrinsic characterization of regular mixed subdivisions of integral polytopes, and lead to open problems of interest in discrete geometry.

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Mathematics and Science Center: MSC W303

Mathematics
Emory University