

Meeting: 1003, Atlanta, Georgia, SS 35A, AMS-MAA Special Session on Tropical Geometry, I

1003-12-1723 **Fred H. Roush*** (froush@asunet.alasu.edu), Mathematics Research Group, Alabama State University, Montgomery, AL 36101-0271, U.S.A., and **K. H. Kim** (khkim@asunet.alasu.edu), Mathematics Research Group, Alabama State University, Montgomery, AL 36101-0271, U.S.A..
Factorization of Polynomials over the Tropical Semiring.

We show that factorization of polynomials in one variable over the tropical semiring is in general NP-complete. We give algorithms for the factorization problem which are polynomial for polynomials of fixed degree. For two-variable polynomials we derive an irreducibility criterion which is almost always satisfied, even for fixed degree, and is polynomial time in the degree. We prove that there are least common multiples of tropical polynomials (and give a polynomial time algorithm to compute this), but not greatest common divisors. (Received October 18, 2004)