

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

1003-13-1285      **Komei Fukuda, Anders Jensen and Rekha Thomas\*** (thomas@math.washington.edu),  
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*Computing Groebner Fans.* Preliminary report.

The Groebner fan of a polynomial ideal is a polyhedral fan whose cells are in bijection with the distinct initial ideals of the ideal. These fans carry highly sophisticated information about the ideal and in particular contain the tropical variety of the ideal. This talk will present a new software package being developed by Anders Jensen, Komei Fukuda and myself for the computation of Groebner fans of arbitrary polynomial ideals. We will also present a non-homogeneous ideal in four variables, found by Jensen in the course of this work, whose Groebner fan is not the normal fan of any polyhedron. This result contrasts with the well known fact due to Bayer and Morrison that when the ideal is homogeneous, its Groebner fan is the normal fan of its state polytope. (Received October 04, 2004)