

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

1003-52-1428 **Anders Nedergaard Jensen***, Department of Mathematical Sciences, Ny Munkegade, Building 530, 8000 Aarhus, Denmark, and **Bernd Sturmfels** and **Rekha R. Thomas**. *Computing tropical varieties*. Preliminary report.

The tropical variety of an ideal $I \subset \mathbb{Q}[t][x_1, \dots, x_n]$ is a polyhedral complex in \mathbb{R}^n and the Bergman fan of I is a polyhedral fan in \mathbb{R}^{n+1} . We present algorithms and software for computing the tropical variety of I by computing the Bergman fan as a subfan of the Gröbner fan. This involves Gröbner basis techniques. In our implementation we exploit symmetries and when I is prime we exploit codimension 1 connectivity for traversal of the Bergman fan. (Received October 05, 2004)