

1124-14-281 **J. Maurice Rojas*** (rojas@math.tamu.edu), TAMU 3368, College Station, TX 77843-3368. *Fast Approximation of Certain A-Discriminant Contours*. Preliminary report.

Determining the topology of real algebraic hypersurfaces is important in many applications, but current methods still lead to average-case complexity polynomial in the degree. We show that, when f is an n -variate $(n+3)$ -nomial, we can compute the topology of the real zero set of f in time polynomial in the log of the degree, for most inputs. The key trick is a fast method to determine discriminant chamber membership for an explicitly large set of inputs. Some of the results presented are joint work with Erin Lipman and Korben Rusek. (Received September 11, 2016)