1125-14-2021   **Martin Helmer*** (`martin.helmer@berkeley.edu`), 966 Evans Hall, Berkeley, CA 94720-3840, and **Jose Israel Rodriguez** and **Serkan Hosten**. *Topological Invariants and the Maximum Likelihood Degree of a Toric Variety.* Preliminary report.

Let X_A be the projective toric variety defined by an integer $d \times n$ matrix A of rank d and let c be a general element of the associated dimension n complex algebraic torus. We show that the maximum likelihood (ML) degree of the variety $c \cdot X_A$ obtained by the torus action of c on X_A can be seen as a coefficient of a particular component of the Chern-Mather class of X_A. This realization allows us to determine a, so called, ML discriminant for $c \cdot X_A$. In particular we show that if the principal A-determinant, E_A, of X_A does not vanish at c we have that $\mathrm{MLdegree}(c \cdot X_A)$ is given by the normalized volume of the polytope obtained by taking the convex hull of the matrix A. Using this we also confirm a known relation between the ML degree of $c \cdot X_A$ and the Euler characteristic of an associated very affine variety. (Received September 19, 2016)