THE MAXIMUM LIKELIHOOD DEGREE OF FERMAT HYPERSURFACES

PAOLO LELLA

We study the critical points of the likelihood function over the Fermat hypersurface. This is a nice example of how algebro-geometric tools can contribute to the problem of maximum likelihood estimation. In particular, using a flat degeneration we show that the ML degree of the Fermat hypersurface can be determined considering special data on the model. Then, we exploit symmetries subdividing the problem into parallel subtasks and we develop algorithmic methods that allow to compute the ML degree in many cases. Joint work with Daniele Agostini, Davide Alberelli and Francesco Grande.