

Seminari de Geometria Algebraica 2007/2008 (UB-UPC)

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## Statistical models and secant varieties

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Certain statistical models with unobserved variables give rise to secant varieties. For example, conditional independence models and probabilistic models on phylogenetic trees give rise to secant varieties. While algebraic geometers have often focused on understanding the dimensions of these varieties, more detailed algebraic questions are also of interest for statistical purposes. In particular, when the preimage of a point under the natural parameterization is zero dimensional, can we further characterize it? After briefly presenting the statistical issues, we discuss recent work on the identifiability of probabilistic models used in phylogenetics and data analysis.

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