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Brandilyn Stigler* (bstigler@smu.edu), Dallas, TX 75275. *Model Selection via Groebner Bases.*

Recently, tools from algebraic geometry have been employed to infer the network structure of biological systems. For a given set of data points over a finite field, the ideal of points can be used to describe the space of polynomials that fit the data and each reduced Groebner basis of the ideal represents a distinct choice of minimal model for the underlying network. Because these models may give rise to vastly different predictions about the network, identifying which ideals have unique reduced Groebner bases is of importance. In this talk, we identify properties of the ideal that result in a unique reduced Groebner basis. We also consider ideals with the same number of reduced Groebner bases. This is joint work with Elena Dimitrova, Qijun He, and Lorenzo Robbiano. (Received July 18, 2017)