

1173-14-319

Brandilyn Stigler* (bstigler@smu.edu), PO Box 750156, Dallas, TX 75275-0156. *Geometric Criteria on Model Spaces of Biological Networks.*

Biological data science is an important field for making decisions based on data collected from both laboratory and clinical settings. Carefully planned experiments are key as they have a direct impact on the efficacy of modeling. A common issue is that the number of candidate models overwhelms the ability to test them. One strategy for mitigating this problem is to reduce the number of models arising from an experiment.

In this talk we describe an algebraic framework for characterizing the space of polynomial models for a biological network using input data. The model space, described in terms of a coordinate ring, can be viewed as a vector space whose basis elements reveal potential interactions among the nodes in the network. An important problem is to identify the possible bases of the coordinate ring. To that end, we focus on standard monomial bases and describe two geometric criteria on the input data that are associated with unique models. We also highlight some upper bounds for the size of the model space. (Received September 21, 2021)