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Jonathan Hauenstein* (hauenstein@nd.edu), **Laura Matusevich**, **Chris Peterson** and **Samantha Sherman**. *Numerically testing binomiality via a witness set*. Preliminary report.

Sparse polynomials that vanish on algebraic sets are preferred in many computations since they are easy to evaluate and often arise from underlying structure. Due to the structure of algebraic sets defined by binomials, there has been several approaches to determine if a given ideal is generated by binomials. This talk will consider a new numerical algebraic geometric approach for deciding binomiality of the ideal vanishing on a given algebraic set described by a witness set. Several examples will be presented demonstrating this new numerical approach. This is joint work with Laura Matusevich, Chris Peterson, and Samantha Sherman. (Received September 06, 2020)