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Unique Reduced Gröbner Bases of Ideals of Points

Computation of vanishing ideals of points comes with challenges even over finite fields. Gröbner bases are the standard tool for computation but for most sets of points the vanishing ideal has several equally "nice" generating sets. These sets yield multiple interpolating polynomials which is not optimal in the context of model selection. In this talk, we will identify properties of the points that result in a unique reduced Gröbner basis for the ideal and see how they benefit the design of experiments and selection of algebraic models of systems in mathematical biology.