

Colloquium

Computing Real Witness Points of Positive Dimensional Polynomial Systems

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摘 要：

We consider a critical point method for finding certain solution (witness) points on real solution components of real polynomial systems of equations. The method finds points that are critical points of the distance from a plane to the component with the requirement that certain regularity conditions are satisfied. In this paper we analyze the numerical stability and complexity of the method. We aim to find at least one well conditioned witness point on each connected components by using perturbation, path tracking and projection techniques. An optimal-direction strategy and an adaptive step size control strategy for path following on high dimensional components are given.