

بسمه تعالی



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Local zeros of smooth maps

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Local zeros of smooth maps may appear in steady-state or equilibrium solutions of many real world problems and their analysis is important from both scientific and engineering perspective. Zeros of a parametric smooth map may present a surprising behavior when the parameters are subjected to small perturbations. Therefore, the analysis of their associated complex dynamics is important and is the main task of this presentation. The general ideas on how to approach the problem, our recent and in-progress research results are briefly presented. We demonstrate the capability of our developed Maple library (named Singularity) for this purpose. We, further, discuss how algebraic tools such as local rings, intrinsic ideals, Groebner and standard bases, ideal membership problem, tangent spaces, module structures and their representations, etc. are related to this research