

Finding Infeasible Cores of a Set of Polynomials using the Gröbner Basis Algorithm

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This talk investigates an algorithmic approach to identify a small unsatisfiable core of an ideal I in $K[x_1, \dots, x_n]$, where K is a field and the ideal I is found to have an empty variety. The main aim of the talk will be to introduce the fundamental notions and to illustrate the concepts we use by examples. We identify certain conditions that are helpful in deciding whether or not a polynomial from the given generating set is a part of the unsat core. Our algorithm cannot guarantee a minimal unsat core; hence the talk discusses opportunities for refinement of the identified core.