

GROBNER BASES AND FIBRE STRUCTURES.

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ABSTRACT. Classical elimination theory deals mainly with the question when partial solutions can be extended to complete solutions for a polynomial system. We ask whether it is possible to predict the exact number solutions of a system without actually solving it. In this talk, we present some relationships between certain Grobner bases and the fibre structures of the solution variety for a polynomial system that defines a 0-dimensional radical ideal. We show that from a Grobner basis one can easily read out information about the numbers of extensions of partial solutions, and one can decompose the system into smaller systems. Joint work with Virginia M. Rodrigues (PUCRS, Brazil) and Jeffrey Stroomer (Xilinx, Inc.).

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