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On the F_5 and F_5B algorithms

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Abstract

Solving systems of multivariable polynomial equations is a basic problem in computer algebra which can be solved using Gröbner basis easily. One of the famous algorithms for computing Gröbner basis is F_5 algorithm which is a bit difficult to understand and implement. In this talk, using a new strategy for selecting critical pairs, we present a syzygy, rewritten criteria, and reduction procedure to introduce a new algorithm called F_5B for computing Gröbner basis. This algorithm is easy to understand and implement, and is equivalent to F_5 . At last, we conclude with some experimental results.

Joint work: A. Basiri.