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Title: Universal Gröbner bases and Cartwright-Sturmfels ideals

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Abstract: By a well-known result of Bernstein-Sturmfels-Zelevinsky, the maximal minors of a matrix of variables form a universal Gröbner basis. Also for the ideal of 2-minors of the matrix of variables the universal Gröbner basis is well described by results of Sturmfels and Villareal.

In this talk we generalize these facts; we consider multigraded matrices of linear forms, and find universal Gröbner bases of the ideals of maximal minors and the ideals of 2-minors. To this aim we introduce two families of multigraded ideals, which we call Cartwright-Sturmfels and Cartwright-Sturmfels*. Both families are characterized by properties of their multigraded generic initial ideals. It turns out that Cartwright-Sturmfels ideals are radical, and that every minimal system of generators of a Cartwright-Sturmfels* ideal is a universal Gröbner basis. Moreover the two classes are closed under standard operations on ideals, and this allows us to prove the desired results.

This is a joint work with Aldo Conca and Elisa Gorla