

SOME TIDBITS ON IDEAL PROJECTORS, COMMUTING MATRICES AND THEIR APPLICATIONS*

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To my teacher and friend Richard Varga on the occasion of his eightieth birthday.

Abstract. The main result of this paper is the parametrization of ideal projectors onto an arbitrary finite-dimensional linear subspace $G \subset \mathbb{k}[\mathbf{x}]$. This parametrization extends the previous ones by B. Mourrain and by M. Kreuzer and L. Robbiano. We also give applications of the technique developed in this paper to a question of similarity between a sequence of commuting matrices and its transpose and to the existence of real solutions to a system of polynomial equations.

Key words. Ideal projector, commuting operators, border schemes.

AMS subject classifications. Primary: 41A63, 41A10, 41A35; Secondary: 13P10.

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