Elementary matrix-computational proof of Quillen-Suslin theorem for Ore extensions

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Abstract

In this short talk we prove that if K is a field and $A := K[x; \sigma, \delta]$ is an Ore extension, with σ bijective, then every finitely generated projective A-module is free. The proof is elementary and matrix-constructive; we will show an algorithm that computes the basis of a given projective module. The algorithm has been implemented in a computational package, and some illustrative examples will be presented using this new experimental software.

Key words and phrases. Projective modules, Ore extensions, non-commutative computational algebra.

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