A Skew Polynomial Approach for Integral Operators

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An algebra of integral operators with polynomial coefficients is defined via skew polynomials, similar to the first Weyl algebra describing ordinary differential operators. Both algebras appear as a subalgebra in the larger skew polynomial ring of integro-differential operators. We study their normal forms, simple algebraic properties and the relation to the localization of differential operators.

[1] G. Rᴇɢᴇɴsʙᴜʀɢᴇʀ, M. Rᴏsᴇɴᴋʀᴀɴᴢ, J. Mɪᴅᴅᴇᴋᴇ: A Skew Polynomial Approach to Integro-Differential Operators, *International Symposium on Symbolic and Algebraic Computation (ISSAC'09).*