DIFFERENTIAL RESULTANTS OF SUPER ESSENTIAL SYSTEMS OF LINEAR OD-POLYNOMIALS

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ABSTRACT. The sparse differential resultant $\partial \mathrm{Res}(\mathfrak{P})$ of an overdetermined system $\mathfrak{P}$ of generic nonhomogeneous ordinary differential polynomials, was formally defined recently by Li, Gao and Yuan (2011). In this note, a differential resultant formula $\partial \mathrm{FRes}(\mathfrak{P})$ is defined and proved to be nonzero for linear "super essential" systems. In the linear case, $\partial \mathrm{Res}(\mathfrak{P})$ is proved to be equal, up to a nonzero constant, to $\partial \mathrm{FRes}(\mathfrak{P}^*)$ for the supper essential subsystem $\mathfrak{P}^*$ of $\mathfrak{P}$.

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