

ON COMPUTING LINEARIZING COORDINATES FROM SYMMETRY ALGEBRA

Sajid Ali¹, Hassan Azad², Waqas Shah², and Fazal Mahomed³

¹Zayed University

²Abdus Salam School of Mathematical Sciences

³University of the Witwatersrand

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Abstract

A characterization of the symmetry algebra of the N th-order ordinary differential equations (ODEs) with maximal symmetry and all third-order linearizable ODEs is given. This is used to show that such an algebra \mathfrak{g} determines – up to a point transformation – only one linear equation whose symmetry algebra is \mathfrak{g} and an algorithmic procedure is given to find the linearizing coordinates. The procedure is illustrated by several examples from the literature.

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