A maple package for generating one-dimensional optimal systems of finite dimensional Lie algebra

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Abstract:

We present a Maple computer algebra package ONEOptimal which can calculate one-dimensional optimal system of finite dimensional Lie algebra for nonlinear equations automatically based on Olver's theory. The core of this theory is viewing the Killing form of the Lie algebra as an invariant for the adjoint representation. Some examples are given to illustrate the validity of the program.