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Mathematical Physics

Solving Linear Differential Equations: A Novel Approach

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We explicate a procedure to solve general linear differential equations, which connects the desired solutions to monomials x^m of an appropriate degree m. In the process the underlying symmetry of the equations under study, as well as that of the solutions are made transparent. We demonstrate the efficacy of the method by showing the common structure of the solution space of a wide variety of differential equations viz. Hermite, Laguerre, Jocobi, Bessel and hypergeometric etc. We also illustrate the use of the procedure to develop approximate solutions, as well as in finding solutions of many particle interacting systems.

Submission history

Which authors of this paper are endorsers?