

Series Solutions to Boundary Value Differential Equations

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Abstract : We present a method of generating series solutions to large classes of nonlinear differential equations. The method is well suited to be adapted in mathematical software and unlike the available commercial solvers, we are capable of generating solutions to boundary value ODEs and PDEs. Many of the generated solutions converge to closed form solutions. Our method can also be applied to systems of ODEs or PDEs, providing all the solutions efficiently. As examples, we present results to many difficult differential equations in engineering fields.

Keywords : computational mathematics, differential equations, engineering, series

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