

A simple framework for approximating differential equations

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Abstract

Based on Theorem 6.5.1 on pp. 165–166 of Donato’s seminal book [7], a new, simple framework for discussing the polynomial approximation to ODE-IVPs has been devised in [6] (the original formulation dating back to 2 years in advance [5]). This approach has been central in discussing the order accuracy of the Runge-Kutta class of energy-conserving methods, for the efficient numerical solution of Hamiltonian problems, named *Hamiltonian Boundary Value Methods (HBVMs)* [4]. For a comprehensive treatment of such methods we refer to the monograph [5] (see also the review paper [6]). Recently, the original approach in [5,6] has been further developed, and also generalized in order to provide a framework for discussing constant-delay DDE-IVPs [1].

References

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