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Improving accuracy of ODE solvers via randomization

Wednesday, August 14, 2024 12:00 PM (30 minutes)

Randomization improves the rate of convergence of numerical schemes for ordinary differential equations. In this talk, we will present error bounds and discuss optimality (in the Information-Based Complexity sense) for selected randomized ODE solvers. Error analysis will be performed assuming low regularity of the right-hand side function (local Holder and Lipschitz continuity in time and space variables, respectively). Moreover, we will investigate the case of inexact information. Finally, we will show results of numerical experiments confirming the theoretical findings.

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