

Generalized extrapolation methods based on compositions of a basic 2nd-order scheme**Authors:**

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Abstract: We propose new linear combinations of compositions of a basic second-order scheme with appropriately chosen coefficients to construct higher order numerical integrators for differential equations. They can be considered as a generalization of extrapolation methods and multi-product expansions. A general analysis is provided and new methods up to order 8 are built and tested. The new approach is shown to reduce the latency problem when implemented in a parallel environment and leads to schemes that are significantly more efficient than standard extrapolation when the linear combination is delayed by a number of steps.

References:

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