

CMMSE: A technique for generating adapted discretizations to solve partial differential equations with the generalized finite difference method

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Abstract

The generalized finite difference method is a meshless method for solving partial differential equations that allows arbitrary discretizations of points. Typically, the discretizations have the same density of points in the domain. We propose a technique to get adapted discretizations for the solution of partial differential equations. This strategy allows using a smaller number of points and a lower computational cost to achieve the same accuracy that would be obtained with a regular discretization.

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