Meshless Finite Difference Method for Elliptic Equations on Complicated 3D Domains

O. Davydov[1], N. M. Tuong[2], and D. T. Oanh[3]

Abstract: Adaptive meshless finite difference method relying on radial basis function stencils developed in [1,2] for elliptic equations in 2D has shown competitive performance on benchmark problems in comparison to the state-of-the art finite element techniques based on a posteriori error estimates. We discuss recent research aiming at extending this method to 3D, with emphasis on complicated domains, where the meshless nature of the method is a significant advantage. In particular, new algorithms for the selection of sets of influence will be presented.

References

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[1] Department of Mathematics, University of Giessen
Arndtstrasse 2, 35392 Giessen, Germany
oleg.davydov@math.uni-giessen.de

[2] Department of Basic Sciences,
University of Information & Communication Technology, Thai Nguyen University
Quyet Thang commune, Thai Nguyen city, Thai Nguyen province, Vietnam
nmtuong@ictu.edu.vn

[3] Division of Science-Technology & International Cooperation,
University of Information & Communication Technology, Thai Nguyen University
Quyet Thang commune, Thai Nguyen city, Thai Nguyen province, Vietnam
dtoanh@ictu.edu.vn