

Li, Ming; Chen, Wen; Chen, C. S.

The localized RBFs collocation methods for solving high dimensional PDEs. (English)

Zbl 1287.65115

Eng. Anal. Bound. Elem. 37, No. 10, 1300-1304 (2013).

Summary: We present a localized meshless method using radial basis functions (RBFs) for solving up to six dimensional problems. To improve the difficulty of selecting a shape parameter of RBF-MQ, a normalized scheme is introduced. We also make a comparison between the global and local RBF methods in terms of stability and accuracy. To demonstrate the applicability of the localized RBF method for high dimensional problems, two numerical examples with Dirichlet boundary conditions are given.

MSC:

65N35 Spectral, collocation and related methods for boundary value problems involving PDEs

Cited in **25** Documents

Keywords:

localized RBF collocation method; radial basis functions; meshless methods; method of approximate particular solutions; Kansa's method

Full Text: [DOI](#)

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