

Alves, C. J. S.; Chen, C. S.; Säler, B.

The method of fundamental solutions for solving Poisson problems. (English) [Zbl 1011.65086](#)
Brebbia, C. A. (ed.) et al., Boundary elements XXIV: Incorporating meshless solutions. 24th world conference, Sintra, Portugal, June 17-19, 2002. Southampton: WIT Press. 67-76 (2002).

Summary: Traditionally the method of fundamental solutions (MFS) is used to approximate solution of linear homogeneous equations. For nonhomogeneous problems, one needs to couple other numerical schemes, such as domain integration, polynomial or radial basis functions interpolation, to evaluate particular solutions.

In this paper we propose to unify the MFS as a numerical method for directly approximating homogeneous solution and particular solution in a similar manner. The major advantage of such approach is that the particular solution can be easily obtained and evaluated. The numerical results show that such approach can be highly accurate.

For the entire collection see [\[Zbl 0991.00034\]](#).

MSC:

- 65N35** Spectral, collocation and related methods for boundary value problems involving PDEs
- 35J05** Laplace operator, Helmholtz equation (reduced wave equation), Poisson equation

Cited in **1** Review
Cited in **19** Documents

Keywords:

[numerical examples](#); [Poisson equation](#); [method of fundamental solutions](#); [radial basis functions interpolation](#)