

ABSTRACT

FUNDAMENTAL SOLUTIONS OF LAPLACE, HELMHOLTZ TYPE AND CONVECTION-DIFFUSION EQUATIONS IN THE USE OF BOUNDARY ELEMENT METHOD

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In this thesis, firstly, Boundary Element Method (BEM) is explained. Then, the importance of the need of the fundamental solution for the differential equation in question is given in the use of BEM. The fundamental solutions of some well-known ordinary differential equations such as n -th order linear differential equations with constant coefficients are obtained. The fundamental solutions of some partial differential equations containing Laplace, Helmholtz, Modified Helmholtz and Convection-Diffusion operators are derived in details.

Keywords: Boundary element method, fundamental solutions.