

Spline-interpolation solution of 3D Dirichlet problem for a certain class of solids

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Abstract

We present a spline-interpolation approximate solution of the Dirichlet problem for the Laplace equation in axisymmetric solids, cones and cylinders. Our method is based on reduction of the 3D problem to a sequence of 2D Dirichlet problems. The main advantage of the spline-interpolation solution of the 3D Dirichlet problem is its continuity in the whole domain up to the boundary even for the case of linear spline. © 2012 The Author 2012. Published by Oxford University Press on behalf of the Institute of Mathematics and its Applications. All rights reserved.

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Keywords

Approximate solution, Boundary-value problem, Laplace equation, Spline