

1049-45-104

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The search for the best method to approximate solutions to the Helmholtz equation for the exterior Dirichlet problem has been a popular topic for decades. Reducing the problem to a boundary integral equation has proved to be an effective way to numerically solve this problem. However, there is a non-uniqueness of the solution that follows this reformulation. In 1974 Jones suggested the modified integral equation approach in order to overcome this non-uniqueness. Warnapala and Lin implemented this method for the sphere, ellipsoid, and perturbation of the sphere. We have furthered the research in an attempt to apply this method to less well-behaved shapes, in this case the peanut shaped Oval of Cassini. (Received February 26, 2009)