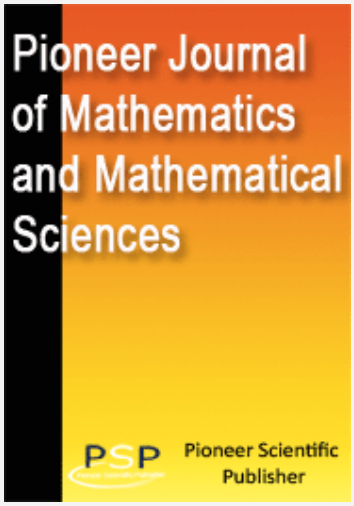
Pioneer Journal of Mathematics and Mathematical Sciences
Volume 4, Issue 2, Pages 199-212 (March 2012)

ISSN: 2230-9829



MATHEMATICAL MODELING OF EM RESPONSE FROM A CIRCULAR DISC EMBEDDED IN A UNIFORM HOST MEDIUM UNDER AN OVERBURDEN HAVING EXPONENTIALLY VARYING CONDUCTIVITY WITH DEPTH

Pagamas Pawong, Noppawan Nilsri, Noppadol Chumchob and Suabsagun Yooyuanyong

Received September 6, 2011

Abstract

In this paper, analytical solution of EM response from a circular disc buried in a uniform host medium under an overburden having exponentially varying conductivity are formulated. The Hankel transforms are used to solve the electric field and expressed in terms of nonlinear integral equations. In order to determine the electric field, the numerical algorithm is developed and computed. The electric field results are shown graphically and compared with the published results in the literature. The calculated results of electric field perform the effect of an anomalous body in the inhomogeneous ground.

Keywords and phrases: Hankel transform, electromagnetic, electric field.