

Modified homotopy perturbation method for solving hypersingular integral equations of the second kind

ABSTRACT

Modified homotopy perturbation method (HPM) is used to solve the hypersingular integral equations (HSIEs) of the second kind on the interval $[-1, 1]$ with the assumption that the kernel in the form $K(x, t)(x-t)^{-\alpha}$ where $K(x, t)$ is a constant on the diagonal of the domain. This method introduced selective functions as Chebyshev polynomials of second kind and unknown parameters that leads to two step iterations and gives exact solution. Example are presented to prove the efficiency and reliability of the method.

Keyword: Homotopy perturbation method; Hypersingular integral equation