

1145-45-388

Kapil Kant* (sahukapil18@gmail.com), Department of Mathematics, Indian Institute of technology, Kharagpur, India, Kharagpur, W.B. 721302, India, and **Gnaneshwar Nelakanti** (gnanesh@maths.iitkgp.ac.in), Department of Mathematics, Indian Institute of Technology, Kharagpur, India, Kharagpur, W.B. 721302, India. *Superconvergence of Jacobi spectral methods for Weakly singular Volterra Integral Equations.*

In this article, a Jacobi spectral Galerkin method is developed for weakly singular Volterra integral equations of the second kind. To obtain the Superconvergence results, we transform the domain of integration of Volterra integral equation to the standard interval $[-1, 1]$ by using variable transformation and function transformation. We obtain the convergence rates in both in infinity and weighted L^2 - norm. We prove that the Jacobi spectral iterated Galerkin method improves over Jacobi spectral Galerkin method. We improve these results further by considering the Jacobi spectral iterated multi-Galerkin method. Theoretical results are justified by the numerical results. (Received September 05, 2018)