

# ASYMPTOTIC ERROR EXPANSION FOR THE NYSTROM METHOD OF NONLINEAR VOLTERRA INTEGRAL EQUATION OF THE SECOND KIND

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摘要

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## ASYMPTOTIC ERROR EXPANSION FOR THE NYSTROM METHOD OF NONLINEAR VOLTERRA INTEGRAL EQUATION OF THE SECOND KIND

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### Abstract

While the numerical solution of one-dimensional Volterra integral equations of the second kind with regular kernels is well understood, there exist no systematic studies of asymptotic error expansion for the approximate solution. In this paper, we analyse the Nystrom solution of one-dimensional nonlinear Volterra integral equation of the second kind and show that approximate solution admits an asymptotic error expansion in even powers of the step-size  $h$ , beginning with a term in  $h^2$ . So that the Richardson's extrapolation can be done. This will increase the accuracy of numerical solution greatly.

### Key words

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