

Sinc-Self-consistent method to solve a class of nonlinear eigenvalue differential equation

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Abstract

In this paper, we combine the sinc and self-consistent methods to solve a class of non-linear eigenvalue differential equations. Some properties of the self-consistent and sinc methods required for our subsequent development are given and employed. Numerical examples are included to demonstrate the validity and applicability of the introduced technique and a comparison is made with the existing results. The method is easy to implement and yields accurate results. We show that the sinc-self-consistent method can solve the equations on an infinite domain and produces the smallest eigenvalue with the most accuracy

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