Application of Optimal Homotopy Analysis Method for Solitary Wave Solutions of Kuramoto-Sivashinsky Equation

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In this paper, the optimal homotopy analysis method is applied to find the solitary wave solutions of the Kuramoto-Sivashinsky equation. With three auxiliary convergence-control parameters, whose possible optimal values can be obtained by minimizing the averaged residual error, the method used here provides us with a simple way to adjust and control the convergence region of the solution. Compared with the usual homotopy analysis method, the optimal method can be used to get much faster convergent series solutions.