

# HAM Solution for a delay parabolic equation

Barış Erköse<sup>1</sup>, Deniz Ağırseven<sup>1</sup>

<sup>1</sup> *Department of Mathematics, Trakya University, Edirne, Turkey*

*b.erkose@hotmail.com      denizagirseven@trakya.edu.tr*

**Abstract:** In this study, exact solution of initial-boundary value problem for a delay parabolic differential equation with Neumann condition is found by using Laplace transform method. By using Homotopy Analysis Method (HAM), we find the numerical solution for this initial-boundary value problem [1]. Comparison of numerical solutions obtained by using HAM and difference schemes is presented in a table [2].

**Keywords:** Parabolic differential equation, time delay, homotopy analysis method, Laplace transform

**2010 Mathematics Subject Classification:** 35K10, 65M06, 65M99

## REFERENCES

- [1] I. H. Gürbey, Gecikmeli parabolik bir diferansiyel denklemin çözümleri, Trakya University, Turkey, 2013.
- [2] A. Ashyralyev, D. Agirseven, On convergence of difference schemes for delay parabolic equations, Computers and Mathematics with Applications 66 (2013) 1232-1244.