

## One Dimensional Unsteady Boundary Layer Flow in an Inclined Wavy Wall of a Nanofluid with Convective Boundary Condition

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**Abstract :** The failure in an ordinary heat transfer fluid to meet up with today's industrial cooling rate has resulted in the development of high thermal conductivity fluid which nanofluids belongs. In this work, the problem of unsteady one dimensional laminar flow of an incompressible fluid within a parallel wall is considered with one wall assumed to be wavy. The model is presented in its rectangular coordinate system and incorporates the effects of thermophoresis and Brownian motion. The local similarity solutions were also obtained which depends on Soret number, Dufour number, Biot number, Lewis number, and heat generation parameter. The analytical solution is obtained in a closed form via the Adomian decomposition method. It was found that the method has a good agreement with the numerical method, and it is also established that the heat generation parameter has to be kept low so that heat energy are easily evacuated from the system.

**Keywords :** Adomian decomposition method, Biot number, Dufour number, nanofluid

**Conference Title :** ICIAM 2017 : International Conference on Industrial and Applied Mathematics

**Conference Location :** Paris, France

**Conference Dates :** January 23-24, 2017