

UNIVERSITI TEKNOLOGI MARA

TECHNICAL REPORT

**SORET AND DUFOUR EFFECTS ON THE HEAT AND MASS
TRANSFERS IN HYBRID NANOFUIDS**

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ABSTRACT

Investigating the effects of Soret and Dufour, also known as thermo-diffusion and diffusion-thermo, on a moving plate in a copper water nanofluid is the major goal of this paper. Before being solved numerically using Tiwari and Das model using bvp4c code in the Matlab software, the set of partial differential equations is transformed into a set of ordinary differential equations using the relevant similarity variables. Graphical representations of the results of Soret and Dufour effects, temperature and concentration profiles, and also heat and mass transfer are shown. While the Dufour effect slows down mass transport at the surface, the Soret effect speeds up heat transfer. Result elucidate that the heat transfer coefficient have declining tendency for both solutions when increasing Soret and Dufour parameters meanwhile the mass transfer coefficient have increasing trend for both solutions when increasing Soret and Dufour parameters with other parameters are fixed. This study does not find the stability analysis.