Influence of Aligned MHD on Convective Boundary Layer Flow of Viscoelastic Fluid

Laila Amera Aziz\textsuperscript{1,a)} Abdul Rahman Mohd Kasim\textsuperscript{2,b)} H.A.M. Al-Sharifi\textsuperscript{3,c)} Mohd Zuki Salleh\textsuperscript{4,d)} Nurul Farahain Mohammad\textsuperscript{5,e)} Sharidan Shafie\textsuperscript{6,f)} Anati Ali\textsuperscript{7,g)}

\textsuperscript{1,2,3,4}Fakulti Sains & Teknologi Industri Universiti Malaysia Pahang, 26300 Kuantan, Pahang, Malaysia.
\textsuperscript{5}Dept. of Math. Sc., Kuliyyah of ScienceInternational Islamic University Malaysia, 25200 Kuantan, Pahang, Malaysia.
\textsuperscript{6,7}Dept. of Math. Sc., Faculty of Science, Universiti Teknologi Malaysia, 81310 Johor, Malaysia.

Corresponding author: \textsuperscript{a)}laila@ump.edu.my
\textsuperscript{b)}rahmanmohd@ump.edu.my
\textsuperscript{c)}husseinump@yahoo.com
\textsuperscript{d)}zuki@ump.edu.my
\textsuperscript{e)}farahain@iium.edu.my
\textsuperscript{f)}sharidan@utm.my
\textsuperscript{g)}anati@utm.my

\textbf{Abstract.} Effects of aligned Magnetohydrodynamics (MHD) on the mixed convection boundary layer flow of viscoelastic fluid past a circular cylinder with Newtonian heating is investigated. Appropriate transformation is applied to the governing partial differential equations to transform them into dimensionless forms which are then solved using finite difference method known as Keller box. For verification purpose, the preliminary numerical solutions of the model are compared with previous study with a particular condition that the magnetic and viscosity effect are both absent. With strong agreement between the previous and current results, the authors believe that the extended outcome produced from the present model is accurate. Findings from the study will be presented in tabular and graphical form.