Compliant Wall Analysis of an Electrically Conducting Jeffrey Fluid with Peristalsis

Tasawar Hayat\textsuperscript{a,b}, Maryiam Javed\textsuperscript{a}, Saleem Asghar\textsuperscript{c}, and Saied Mesloub\textsuperscript{b}

\textsuperscript{a} Department of Mathematics, Quaid-i-Azam University Islamabad 44000, Pakistan
\textsuperscript{b} Department of Mathematics, College of Sciences, King Saud University, P.O. Box 2455, Riyadh 11451, Saudi Arabia
\textsuperscript{c} Department of Mathematics, Comsats Institute of Information Technology Islamabad, Pakistan

Reprint requests to T. H.: E-mail: pensy.t@yahoo.com

Z. Naturforsch. 66a, 106 – 116 (2011); received March 9, 2010 / revised October 30, 2010

This investigation looks at the peristaltic flow of a magnetohydrodynamic (MHD) Jeffrey fluid in a channel with compliant walls. The flow induced is due to sinusoidal waves on the channel walls. A series solution of the resulting boundary value problem is derived when the wave amplitude is small. Effects of various interesting flow parameters are discussed with the help of graphs.

\textit{Key words:} Peristaltic Flow; Jeffrey Fluid; MHD; Compliant Walls.