

# Peristaltic Transport of a Hyperbolic Tangent Fluid Model in an Asymmetric Channel

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In the present analysis, we have modeled the governing equations of a two dimensional hyperbolic tangent fluid model. Using the assumption of long wavelength and low Reynolds number, the governing equations of hyperbolic tangent fluid for an asymmetric channel have been solved using the regular perturbation method. The expression for pressure rise has been calculated using numerical integrations. At the end, various physical parameters have been shown pictorially. It is found that the narrow part of the channel requires a large pressure gradient, also in the narrow part the pressure gradient decreases with the increase in Weissenberg number  $We$  and channel width  $d$ .

*Key words:* Modeling of Hyperbolic Tangent Fluid Model; Asymmetric Channel; Analytical Solutions.