THE EFFECTS OF A BEAVERS-JOSEPH'S SLIP CONDITION ON THE TEAR FILM

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ABSTRACT

This study focuses on the tear film on a contact lens influence of lens thickness and the slip condition of a Beavers-Joseph. Tear film is a thin film that covers the surface of the eye and is crucial to protect the eyes from external elements, lubricating the ocular surface and maintaining a smooth surface to refract light. The purpose of this study is to obtain the evolution equation of slip condition of Beavers-Joseph. The study also aims to use the Finite Difference method using ode45 as a tool in solving Partial Differential Equations (PDEs). The results revealed the effects on tear film after considering the factors and several parameters such as porosity, gravitational, slip parameter, contact angle and film thickness. The result shows that increasing the lens thickness and slip boundary contribute to increase in the film thinning. It appears from the results of the research that lens thickness and slip conditions can have significant effects on the tear film. Significant understanding of the behaviour of tear film on a contact lens has been gained from the study's findings. Along with having potential applications in the fields of science, manufacturing and medicine, this research can aid in our understanding of pertinent physical phenomena.

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