Numerical Simulation of Electroosmotic Flow through Triangular Microchannel VAITHEESWARAN GNANARAJ, V. MOHAN, Thiagarajar College of Engineering — Numerical simulation electroosmotic flow through triangular microchannels has been developed in this paper. The governing equations consist of a 2D Poisson-Boltzman equation and a 2D Navier Stoke's with Electric Double Layer (EDL) field and velocity field in the cross-section of triangular microchannel are solved analytically. The effects of channel height, electrolyte concentration, surface potential, EDL thickness and externally applied elctric field on the velocity profile of traiangular microchannels are numerically studied. The comparison of numerical simulation results shows excellent agreement with the corresponding analytical solution. The numerical simulation shows significant influences of channel cross-section geometry and volumetric flow rate.

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