

Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

The role of the anchoring conditions in the electro rheological behavior of a nematic constrained by two coaxial cylinders and submitted by a pressure drop DANIEL MARTNEZ SNCHEZ, Universidad Autnoma de la Ciudad de Mxico, JUAN ADRIN REYES CERVANTES, Universidad Nacional Autnoma de Mxico — We study a nematic liquid crystal (LC) filling the region between two coaxial cylinders subjected to the simultaneous action of both a pressure gradient applied parallel to the axis of the cylinders and a radial low frequency electric field. For the LC 4'-n-pentyl-4-cyanobiphenyl (5CB), we consider soft anchoring boundary conditions to obtain the configuration of the director and the velocity profile and the pressure gradient for nonslip boundary conditions. Finally, we calculate the effective viscosity, the first normal stress difference, and the dragging forces on the cylinders.

Daniel Martnez Snchez
Universidad Autnoma de la Ciudad de Mxico

Date submitted: 05 Nov 2015

Electronic form version 1.4