# Steric-effect induced electrocapillarity of ionic liquid in a nanoslit with overlapped EDL

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When an electrode is immersed in an electrolyte solution, the attracted counterions push each other to exhibit the electrocapillarity phenomenon. Electrocapillarity effect of an ionic liquid in a nanoslit is a summed up effect of osmotic pressure contribution and Maxwell stress contribution. Modified Poisson-Fermi equation is used as the governing equation for the study of EDL overlapping phenomena in a nanoslit under some applied voltage. Analytical solution for this problem is difficult to obtain because of its high non-linearity. Solution of the above equation is investigated numerically to study about electric potential distribution, considering crowding and screening effects simultaneously. An analysis of the deformation of interface is also done to predict the interface shape which is deformed due to the effect of the electric field.