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On conjoining pressures in the tear film JAVED SIDDIQUE, Penn State York, NICHOLAS GEWECKE, RICH BRAUN, University of Delaware — We study the local tear film dynamics in a two-layer model with a Newtonian extensional layer over a Newtonian shear layer with a surfactant between. The upper layer represents the lipid layer and the underlying layer the aqueous layer in the tear film. We study the effect of the ions on the conjoining pressure in the aqueous layer using a Debye-Huckel approximation. If time permits, we will treat the evaporation of the water from the underlying aqueous layer and the effect of increasing osmolarity of the aqueous and the interaction with the conjoining pressure. More complicated conjoining pressure contributions are added as needed.

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