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Richard J Braun* (braun@math.udel.edu), Dept of Mathematical Sciences, University of Delaware, Newark, DE 19716. *Models of the Human Tear Film During the Blink Cycle.*

Lubrication models for the tear film are discussed in one and two spatial dimensions. In 1D, results for the blink cycle are presented. Notions of a full blink and periodic solutions are linked. In 2D, we present results for tear film dynamics on eye-shaped domains. Our understanding of the tear film drainage system is modified by the role of the meniscus in driving flow on the 2D domain. This work is in collaboration with K.L. Maki and P. Ucciferro (U of Delaware), W.D. Henshaw (LLNL) and P.E. King-Smith (Ohio State U). (Received January 25, 2009)