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**The significance of electrically induced shear stress in drainage of thin aqueous films** VLADIMIR AJAEV, Southern Methodist University, CHRISTIAAN KETELAAR, University of Delaware — We develop a model of drainage of a microscale thin aqueous film separating a gas bubble and a solid wall. In contrast to previous studies, the electrostatic effects are accounted for not only in the normal but also in the shear stress balance at the liquid-gas interface. We show that the action of the tangential component of the electric field leads to potentially strong spatially variable shear stress at the deforming charged interface. This previously overlooked effect turns out to be essential for correctly estimating the long-time drainage rates. Time-dependent fluid interface shapes predicted by our model are in very good agreement with the experimental data.

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