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Shape fluctuations of a giant lipid vesicle in an external electric field[1] NICO FRICKE, PETIA VLAHOVSKA, Brown University — We experimentally study the influence of an applied electric field on the physical properties of lipid bilayer membranes. Global and regional analyses of the shape fluctuations of a giant quasi-spherical vesicle ("flicker spectroscopy") are used to infer membrane tension, and bending rigidity from a time series of microscope images. The parameters of the electric field (frequency and amplitude) are chosen such that there is no global vesicle deformation, and hence any renormalization of the tension and bending rigidity arise only from electric stress in the membrane. Using this approach we examine the effect of the electrotension on the main phase transition temperature of lipid membranes, where we observe that increasing field strength decreases, albeit slightly (about 0.1K), the melting temperature

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