

Abstract Submitted  
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**On the interactions between neutral lipid bilayers** OSCAR CALVO, MARIAN MANCIU<sup>1</sup>, University of Texas at El Paso, ELI RUCKENSTEIN<sup>2</sup>, State University of New York at Buffalo — The stability of many colloids is thought as a balance between attractive van der Waals interactions and double layer repulsive forces. However, the latter does not exist for neutral lipid bilayers, for which the repulsive forces are supposed to be provided by a combination between hydration forces and Helfrich forces, due to the suppression of the thermal undulation, when two bilayers approach each other. Hydration forces are related to the structuring of water near surfaces, which is likely to be decreased by the thermal undulations. Helfrich forces have a longer range than the attractive forces and cannot lead by themselves to a stable minimum. We will show that the polarization model for the hydration forces combined with a statistical treatment for undulating bilayers might explain the interactions between neutral lipid bilayers.

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