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The Casimir forces between inclusions in a fluid membrane HSIANG-KU LIN, ROYA ZANDI, UMAR MOHIDEEN, LEONID PRYADKO, University of California at Riverside — We discuss the fluctuation-induced force, a finite-temperature analogue of the Casimir force, between two foreign inclusions embedded in a stretchable fluid membrane. Specifically, we suggest a Green's-function-based method to calculate the Casimir interaction in cases where the fluctuations of a planar membrane are governed by Helfrich Hamiltonian, including the surface tension σ and both bending κ and Gaussian $\bar{\kappa}$ rigidities. For two circular inclusions in a fluid membrane, the Casimir energy scales as the inverse power law of the separation and is greatly reduced beyond the characteristic length $\ell_0 = \sqrt{\kappa_0/\sigma_0}$. The impact of line tension is also discussed.

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