Casimir Interaction at Soft Interfaces EHSAN NORUZIFAR, JEF WAGNER, University of California, Riverside, HSIANG-KU LIN, University of California, Riverside / MIT, UMAR MOHIDEEN, ROYA ZANDI, University of California, Riverside — We study Casimir interaction due to the thermal fluctuations between colloidal particles on the membranes and fluid interfaces. To calculate the Casimir energy we employ the scattering formalism. In this technique the shape and material properties of the colloids are encoded in their scattering matrices. The energy is calculated by combining the scattering matrices with the universal translation matrices, which convert between the bases used to compute scattering for each colloid, but otherwise are independent of the physical and chemical properties of the colloids and the interface. We show that in the scattering formalism one can easily implement various geometries and material properties and more importantly calculate the energy for all separation regimes.

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