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Parameterization of lattice spacings for lipid multilayers in lithium salts HORIA PETRACHE, Indiana University Purdue University Indianapolis, MERRELL JOHNSON, Indiana University Purdue University Fort Wayne , DANIEL HARRIES, The Hebrew University Jerusalem, SOENKE SEIFERT, Argonne National Laboratory — Lipids, which are molecules found in biological cells, form highly regular layered structures called multilamellar lipid vesicles (MLVs). The repeat lattice spacings of MLVs depend on van der Waals and electrostatic forces between neighboring membranes and are sensitive to the presence of salt. For example, addition of salt ions such as sodium and potassium makes the MLVs swell, primarily due to changes in electrical polarizabilities. However, a more complicated behavior is found in the presence of lithium ions. Using x-ray scattering, we show experimentally how the interactions between membranes depend on the type of monovalent ions and construct parameterizations of MLVs swelling curves that can help analyze van der Waals interactions.

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