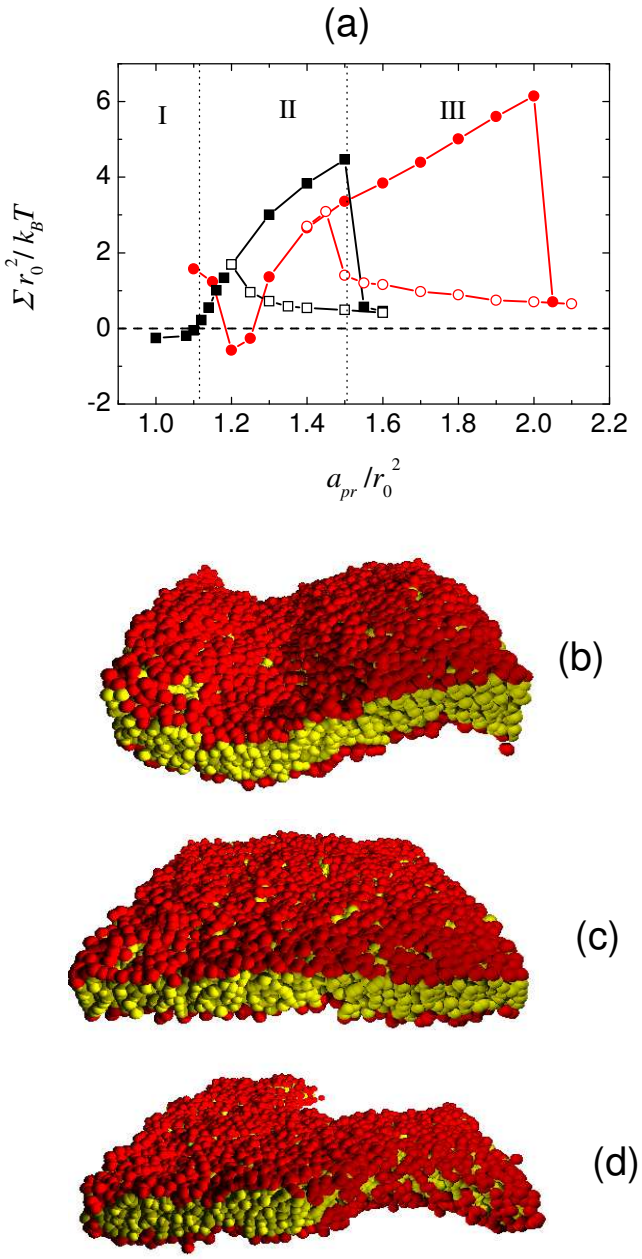

FIG. 1: (a) Surface tension Σ versus projected area per lipid molecule for 1480 lipids in a simulation box with fixed volume $V = 32,768 r_0^3$. The filled squares corrspond to the new parameters in Table II, the filled circles to the old parameters in Table I. The open squares and circles are results for bilayers initially containing a small circular pore. The bilayers with the new parameterization exhibit the three regimes I, II, and III as the projected area is increased. Typical bilayer conformations in these three regimes are shown in (b), (c) and (d) respectively. In these snapshots, lipid head beads are red, tail beads are yellow and water beads are invisible.

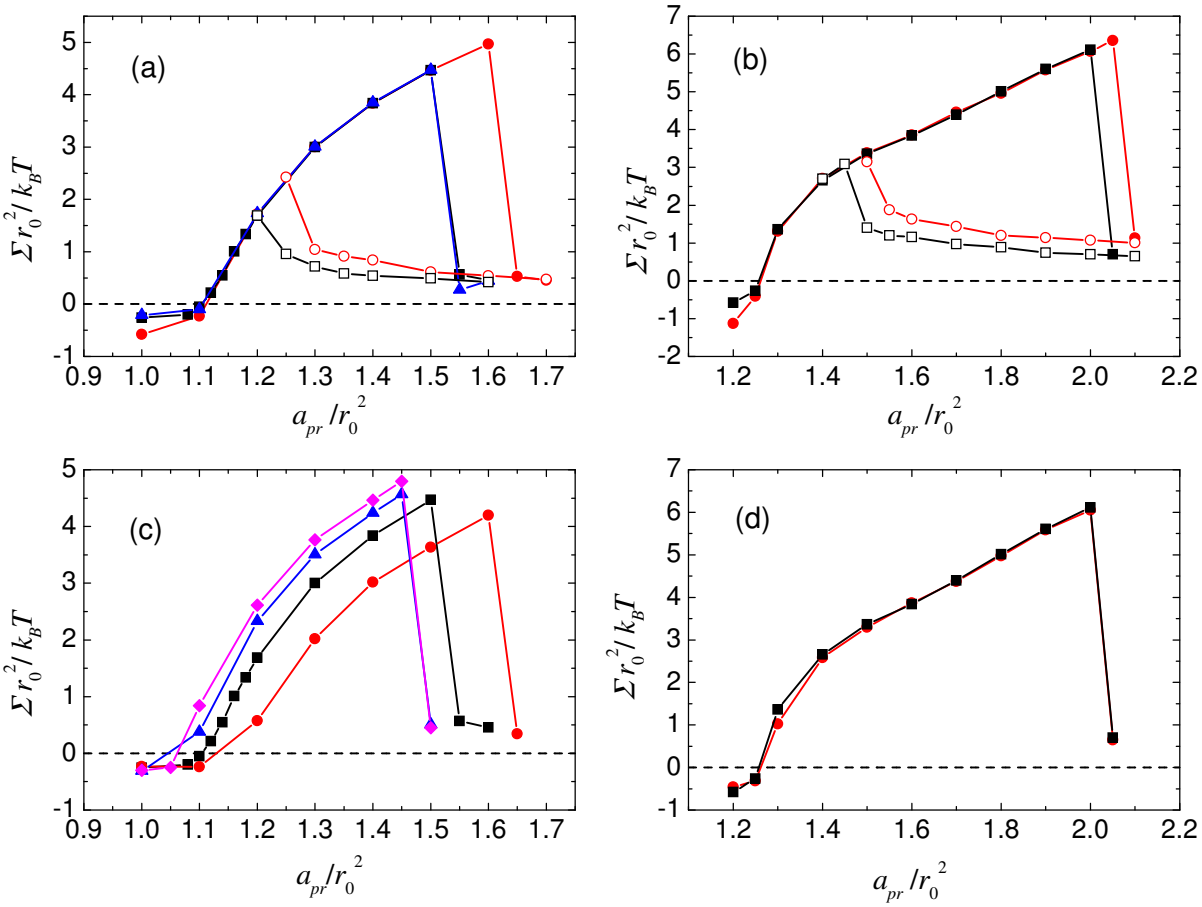

FIG. 4: Rescaled membrane tension Σ as a function of the rescaled projected area per lipid, a_{pr}: (a) Lateral finite size effects obtained by using the new parameter set in Table II for 740 lipids in a simulation box with volume $V_1 = 16,384r_0^3$ (circles), 1480 lipids in a box with volume $V_2 = 2V_1$ (squares), and 2960 lipids in a box with volume $V_3 = 4V_1$ (triangles). (b) Lateral finite size effects obtained by using the old parameter set in Table I for 740 lipid and volume $V_1 = 16,384r_0^3$ (circles), 1480 lipids and volume $V_2 = 2V_1$ (squares). In (a) and (b), open and filled symbols correspond to bilayers initially with and without pores, respectively. (c) Transverse finite size effects obtained by using the new parameter set in Table II for 1480 lipids in simulation boxes with volume $V_1 = 16,384r_0^3$ (circles), $V_2 = 2V_1$ (squares), $V_3 = 4V_1$ (triangles), and $V_4 = 8V_1$ (diamonds); (d) Absence of transverse finite size effects for the old parameter set in Table I and 1480 lipids in simulation boxes with volume $V_1 = 16,384r_0^3$ (circles) and $V_2 = 2V_1$ (squares).

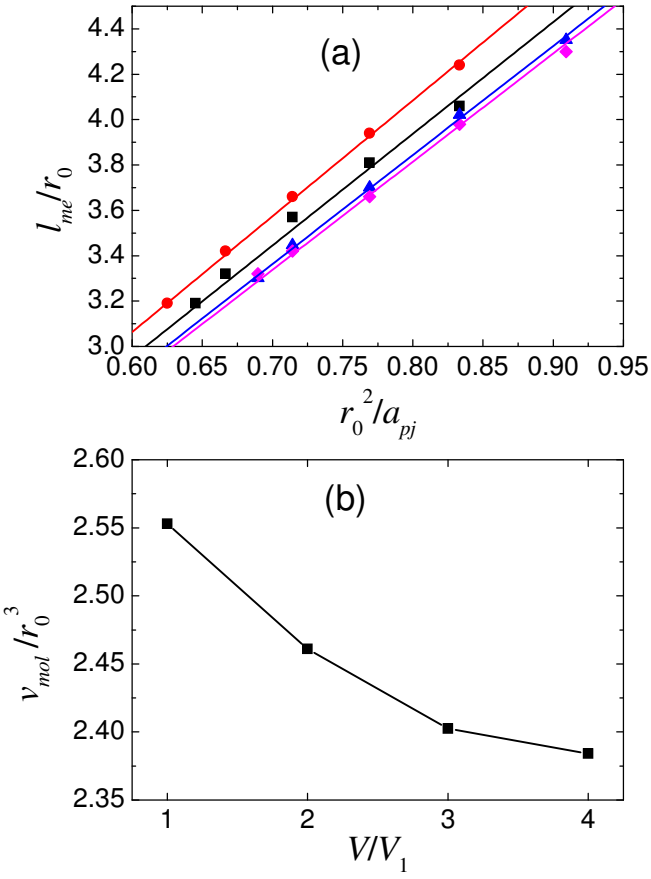

FIG. 6: (a) Membrane thickness l_{me} as a function of the inverse lipid area $1/a_{pr}$ in four simulation boxes with volume $V_1 = 16,384 r_0^3$ (circles), $V_2 = 2V_1$ (squares), $V_3 = 4V_1$ (triangles), and $V_4 = 8V_1$ (diamonds). Full lines are linear fits. (b) Molecular volume $v_{mol} = \frac{1}{2} l_{me} a_{pr}$ of lipids in the bilayer phase obtained from the linear fits versus the sytem size $V \sim L_\perp$ for fixed $L_{//}$.