

Abstract Submitted
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Defect induced shape instabilities in textured Membranes DANIEL A. VEGA, Dep. of Physics. IFISUR. Univ. Nac. del Sur. Conicet. Argentina, MARCELO A. VILLAR, Dep. of Chem. Eng. PLAPIQUI. Univ. Nac. del Sur. Conicet. Argentina, ALDO D. PEZZUTTI, Dep. of Physics. IFISUR. Univ. Nac. del Sur. Conicet. Argentina — We study the dynamics of defect annihilation and quasi-equilibrium configurations in flexible textured membranes suffering a symmetry breaking phase transition. The phase separation process and relaxational properties are described through a Brazovskii-Helfrich-Canham Hamiltonian. Topological defects favor the development of local curvature to geometrically screen out the intrinsic stress field generated by the perturbations to the low symmetry phase. While in hexagonal systems the unbinding of dislocations and Carraro-Nelson interactions between disclinations slow down the dynamics, in smectic systems we found a wrinkled state where the bending forces are balanced by the out-of plane hoop stretching generated by positive disclinations. The wrinkled configuration found in the smectic systems show features that resemble those found in flexible thin films under small external loads.

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