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Γ -limit for a sharp interface model related to pattern formation on biomembranes

We derive a macroscopic limit for a sharp interface version of a model proposed by Komura, Shimokawa and Andelman to investigate pattern formation in biomembranes due to competition of chemical and mechanical forces. We identify sub- and supercritical parameter regimes and show with the introduction of the autocorrelation function that the ground state energy leads to the isoperimetric problem in the subcritical regime, which is interpreted to not form fine scale patterns

This is joint work with Hans Knüpfer and Anna Marciniak-Czochra.