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*An isoperimetric problem with long-range interactions related to diblock copolymers*

Recently there has been interest in understanding pattern formation of diblock copolymers on the surface of a sphere. In this talk we will consider the sharp interface limit of a diblock copolymer model, and analyze the character of axisymmetric critical points defined on a two dimensional sphere. Besides being a canonical nonlocal perturbation of the isoperimetric problem, the energy functional we are going to investigate also poses challenges as a model of energy-driven pattern formation caused by competing short- and long-range interactions. This is a joint work with Rustum Choksi and Gantumur Tsogtgerel.