

Xiaofeng Ren, IMA and Utah State University

”The Ohta-Kawasaki equation of diblock copolymers”

ABSTRACT:

The Ohta-Kawasaki equation of diblock copolymers is an integral differential equation that arises from a density functional theory of diblock copolymers. The equation can also be written as an elliptic system of a Cahn-Hilliard like equation coupled to a linear equation. We discuss the existence and stability in space of solutions that exhibit lamellar patterns. Wide stripe lamellar patterns are found by the Gamma-convergence method and narrow stripe lamellar patterns are found by the Lyapunov-Schmidt reduction method. The stability analysis identifies critical eigenvalues of the linearized equation. It also gives solutions of wriggled lamellar patterns. All results are from my joint papers with Juncheng Wei.