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Domain Growth in 2D Hexagonal Patterns with Diffuse Interfaces DANIEL A. VEGA, LEOPOLDO R. GÓMEZ, Department of Physics - Universidad Nacional del Sur - CONICET. (8000) - Bahía Blanca - Argentina, RICARDO J. PIGNOL, Department of Mathematics - Universidad Nacional del Sur. (8000) -Bahía Blanca - Argentina — The coarsening process in planar patterns has been extensively studied during the last two decades. Although progress has been made in this area, there are still many open questions concerning the basic mechanisms leading the system towards equilibrium. Some of these mechanisms (including curvature driven growth, grain rotation and defect annihilation) have mostly been addressed in systems displaying sharp interfaces. In this work we traced the dynamics of phase separation in hexagonal patterns with diffuse interfaces through the Cahn-Hilliard model. By studying orientational and translational order and densities of topological defects we were able to identify a mechanism of coarsening simultaneously involving curvature driven growth, front propagation and grain rotation. In this regime we found that different correlation lengths characterizing the hexagonal pattern increase logarithmically with time.

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