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Effects of the Deep of Quench on the Mechanisms of Pattern Formation of Sphere Forming Block Copolymers LEOPOLDO R. GÓMEZ, DANIEL A. VEGA, Department of Physics - Universidad Nacional del Sur - CONICET. (8000) - Bahía Blanca - Argentina, ENRIQUE M. VALLÉS, Plapiqui - Universidad Nacional del Sur - CONICET. (8000) - Bahía Blanca - Argentina — The disorder-order transition of a two dimensional sphere forming block copolymer is studied through the Cahn-Hilliard model at different deeps of quench. The process of microphase separation and kinetic of pattern formation are controlled by the spinodal and order-disorder temperatures. In the spinodal region the deep of quench strongly affect both, ordering times and density of topological defects. As the spinodal temperature is approached, the density of disclination becomes very small and grains show a perfect orientational and translational order. In a narrow region of temperatures the system relax towards equilibrium via the nucleation and growth mechanism. In this region the critical grain size is approximately one lattice constant in the neighborhood of the spinodal line and diverges as the order-disorder temperature is approached.

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