

Phase Separation gives Rise to Nanoparticle Ring Formation

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We report on the formation of self-assembled rings of CoPt₃ nanoparticles in ultrathin polymer films (ring diameter about 1 μm , particle diameter 6 nm). The polymer thin film was formed by wetting a polymer solution on the surface of water. The process of self-assembling turns out to result from phase separation of the binary polymer solution film used, the subsequent dewetting of the top layer, and its decomposition into droplets on the surface of the bottom layer.

Key words: Self-Assembly; Nanoparticles; Phase Separation; Wetting; Dewetting;
Polymer Thin Film.