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Capillary Condensation in Polymer Blends: an Analysis of Phase Transitions[1] CAROLINA C. ILIE, State University of New York at Oswego, Department of Physics, NICHOLAS C. JIRA, IAN R. EVANS, MATTHEW COHEN, JULIA R. D'ROZARIO, MARIE T. ROMANO, ILDAR SABIRIANOV, SUNY Oswego — We explore herein the capillary condensation for various geometries. Capillary condensation is studied in the presence of van der Waals forces. We derive the grand free energy, and we analyze the phase transitions, the absorption isotherms and the triple point. Phase transitions between full, empty and two films are investigated and the shape of the liquid is calculated. We also analyze an important application of wetting phenomena and capillary condensation in binary polymer blends and investigate the type of wetting transitions presented and the phase diagram.

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