1064-35-391   **Honghu Liu*** (`liu40@indiana.edu`), Department of Mathematics, Indiana University, Bloomington, IN 47405, **M. Taylan Sengul**, Department of Mathematics, Indiana University, Bloomington, IN 47405, and **Shouhong Wang**, Department of Mathematics, Indiana University, Bloomington, IN 47405. *Phase transition of binary systems.* Preliminary report.

In this talk, we shall present a unified approach to study the thermal induced phase transition in binary systems, such as mixtures of two fluids, diblock copolymer melts, etc. Three different but related models are examined: the Cahn-Hilliard type equation with a nonlocal term in the corresponding energy functional, phase-field model, and the Cahn-Hilliard equation with the Onsager mobility. The main technical tool is the dynamic transition theory developed recently by Ma and Wang. Also, the study leads to some interesting physical conclusions. (Received September 14, 2010)