Phase transitions in two-dimensional systems with spatially separated electrons and holes in layered structure of coupled quantum wells are discussed. Phase diagram, spectra and superfluidity of the liquid of spatially separated electron-hole pairs (or dipole excitons) are analyzed. The influence of the random fields (due to impurities, roughness of boundaries etc.) on the superfluidity and Bose-Einstein condensation (BEC) of excitons and magnetoexcitons in strong magnetic field is analyzed. The phase transition magnetoexciton superfluid-magnetoexciton glass in the presence of strong magnetic field and disorder is discussed. A theory of BEC and superfluidity of quasi-two-dimensional (2D) exciton polaritons in a semiconductor microcavity with embedded quantum well, when there is an in-plane parabolic potential for the exciton energy, which also shifts the resonance with the photon mode will be discussed.

Light refreshment will be served