Condensed Matter Physics.

Syllabus of the course 689, 2007

Instructor Valery Pokrovsky

2. Simple models displaying long-range orders: Ising model, the Lattice gas model, XY-model, Heisenberg model.
7. Superfluids and Superconductors.
10. Two-dimensional ordered systems.
11. Incommensurate crystals and quasicrystals.

Topics for presentations:

1. Quasicrystals.
2. Fredericks transition.
3. Blue phases of cholesteric liquid crystals.
4. Vortices in superconductors and superfluids.
5. Order parameter in $^3$He and exotic superconductors.
6. Condensate in cooled gases of alkali metals.
7. High-$T_c$ superconductors.
8. Charge and spin density waves.
9. Modulated magnetic structures (Cr).
10. Metal-insulator transition.