Research Seminar
March 24, 2009

Report

All seven physics STAIRSTEP students and 23 undergraduate students have participated to a
talk about analytic and numerical studies of magnetism in strongly correlated solid-state systems.
Competing tendencies in strongly correlated solid-state systems can lead to spontaneous
nanoscale structures, such as stripes and checkerboards. His study of the magnetic excitations in
the striped phases and checkerboard phases strongly resemble recent neutron scattering
experimental data in cuprate superconductors and iron-based superconductors. The seminar
offered a brief introduction of the possible topics for doing research with students, which
includes new nanoscale patterns in superconducting materials, Monte Carlo simulations,
graphene and carbon electronics.