Title: Spontaneous Quantum Hall Effect in Frustrated Magnets

Cristian D. Batista (Los Alamos National Laboratory)

I will present results on the Kondo Lattice models on a triangular lattice for band filling factors n=3/4 and n=1/4. We will see that a simple non-coplanar chiral spin ordering with *uniform scalar spin chirality* is naturally realized for different coupling regimes of each of the two filling factors under consideration. The n=3/4 case corresponds to a weak-coupling instability driven by perfect nesting of the Fermi surface. The n=1/4 instability takes place in the intermediate coupling regime. The resulting triple-**Q** magnetic ordering is a natural counterpart of the collinear Neel ordering of the half-filled square lattice Hubbard model. We will also see that the obtained chiral phase exhibits a spontaneous quantum Hall-effect with $\sigma_{xy}= e^2/h$.

*Work done in collaboration with Ivar Martin.

LA-UR-08-04926