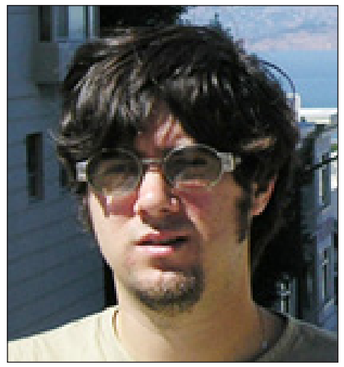
Seminar

Institutul de Fizică Atomică

Topological Order in Fractional Quantum Hall States and a New Principle of Adiabatic Continuity

B. Andrei Bernevig

Eugene and Mary Wigner Assistant Professor
in Theoretical Physics
Princeton University, Princeton NJ 08544
bernevig@princeton.edu



Topological phases lack local order parameters that can distiguish them. Their low-energy field theory is not of Ginzburg-Landau type, and, given a many-body ground-state wavefunction of a generic Hamiltonian, it is usually extremely hard to recognize whether the state is topological or not. One example of a topological state (and the only one experimentally discovered so far) is the Fractional Quantum Hall (FQH) effect. Quasiparticles in the FQH can exhibit statistics that is different from the usual bosons or fermions, and can even be non-abelian. A new principle of adiabatic continuity based on the eigenvalues of the entanglement spectrum rather than the real energy eigenvalues will be presented.

Seminar organizat de IFA în colaborare cu Catedrele de Fizică Teoretică şi Matematică şi de Fizica Solidului din Facultatea de Fizică, Universitatea Bucureşti

Marți 22.12.2009, ora 11^{00}, Sala de consiliu, Bloc Turn, etaj 9