

Announcement

**Oberseminar:
Biological Models and Statistical Mechanics**

Monday, February 6, 2012 18 s.t.

Speaker

**Andrea Collevocchio
(Università Ca' Foscari di Venezia)**

Title

On a preferential attachment model

abstract: We study a general preferential attachment model. Consider a random graph which evolves in time. At each step a new vertex is introduced, which can be connected to at most one existing vertex. If it is disconnected, it becomes a pioneer vertex. Given that it is not disconnected, it joins an existing pioneer vertex with a probability proportional to a function of the degree of that vertex. This function is allowed to be vertex dependent, and is called reinforcement function. We only assume that these functions are strictly positive. We prove that there can be at most three phases in this model, depending on the behavior of the reinforcement functions. Consider the set whose elements are the vertices whose degree tends a.s. to infinity. We prove that this set either is empty, or it has exactly one element, or it contains all the pioneer vertices. Moreover, we describe the phase transition in the case where the reinforcement function is the same for all vertices. Our results are general, and in particular we are not assuming monotonicity of the reinforcement functions. Our proofs rely on a generalization of the Rubin construction given for edge-reinforced random walks. This is joint work with Codina Cotar and Marco Li Calzi.

Place

room MA 748