CMM
Center for
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cmm.uchile.cl

Beauchef 851, Edificio Norte, piso 7
Santiago, CHILE
CP 837 0456

tel +56 2 2978 4870

Chilean Probability Seminar

Orador: Bas Lodewijks (Université Jean-Monnet, Francia)

Título: Super-linear preferential attachment with fitness.

Resumen: Preferential attachment models have been very popular and widely studied in the past 20-25 years, among other reasons for their ability to model real-world complex networks. In this talk we consider a model of randomly growing trees called super-linear preferential attachment with fitness. In this model, we start with a root labelled $1$with fitness (or vertex-weight) W_1, and at each step $n \geq 2$a new vertex $n$with fitness W_n(an i.i.d. copy of W_1) is introduced and connected to one vertex already present in the tree. Conditionally on the tree created so far (including the vertex-weights), vertex $n$connects to vertex $i \in \{1, \dots, n-1\}$with a probability proportional to $f(\deg_{n-1}(i), W_i)$, where $\deg_{n-1}(i)$is the degree of vertex i in the tree of size $n-1$created so far, and $f$is called the attachment function.
We focus on the case where $f$grows super-linear in the degree (its first argument). In particular, we shall discuss the two examples $f(j, W) = W j^p$and $f(j, W) = j^p + W$ (multiplicative fitness and additive fitness, respectively), where $p > 1$is a constant called the super-linear exponent. We will identify a phase transition in structural properties of the tree in terms of $p$and the vertex-weight distribution. We will also discuss conditions on the attachment function and the vertex-weight distribution such that this transition can be observed in the general super-linear case as well. Joint work with Tejas Iyer (WIAS Berlin).

El enlace para conectarse al seminario por Zoom será anunciado el Miércoles mismo.

Daremos el enlace para conectarse al seminario el mismo día Miércoles por la mañana.

Esta tendrá lugar de forma híbrida el Miércoles **7** de **Junio** a las **16:15** horas en la **Sala 1 del Edificio Rolando Chuaqui** de la Facultad de Matemáticas de la Pontificia Universidad Católica de Chile, **Campus San Joaquín**.