## Unité de Probabilités

#### **Conférence de Aidan Sudbury**

<u>EPFL</u> > <u>Faculté SB</u> > <u>IMA</u> > <u>PROB</u> & <u>PRST</u> > <u>Séminaires</u> > Mardi 5 juillet 05 - Aidan Sudbury french only

## Séminaire de Probabilité

Mardi 5 juillet 2005 à 10h15 <u>MA 12</u>, EPFL, Ecublens

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# Blocking, annihilation and dimer models on tree structures.

### Résumé

First I shall consider a variety of models in which particles arrive on an initially empty lattice and then stick. If there were no restrictions, then obviously the lattice would simply fill up. However, in a blocking process no particle can land next to another particle, and in a dimer process the particles must arrive as pairs. In both cases empty sites remain. The final proportion of occupied sites is easy to calculate if the lattice is  $\mathbf{Z}$  and very difficult if it is  $\mathbf{Z}^2$ . I shall be considering the intermediate problem when the graph is a tree. The results come from a surprisingly simple set of first-order differential equations.

Secondly, I shall consider dynamic versions of these models in which particles can leave the lattice as well as arrive. The equilibrium distribution for the Blocking process has a well-known phase-transition which rather delightfully depends on a bifurcation in a recurrence relation. It does not appear that the occupation probability in equilibrium for the Dimer process has been derived before. Compléments Annonce officielle Lien MathSciNet Home page

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