

# ÉCOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE

Institut de Mathématiques.

Groupe Probabilités.

## SÉMINAIRE DE PROBABILITÉS

Vendredi 9 Janvier 2004 à 10h15.

salle MA 12, 1<sup>er</sup> étage, E.P.F.L., Ecublens

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### **The simple random walk on infinite percolation clusters.**

#### **Résumé**

We study the simple random walk on infinite percolation clusters to determine whether properties of a graph are inherited by its infinite cluster of Bernoulli bond percolation. For the Cayley graph of certain amenable groups known as “lamplight groups”, zero speed for random walk on a lamplighter group implies zero speed for random walk on an infinite cluster, for any supercritical percolation parameter  $p$ . For  $p$  large enough, we also establish the converse. For the Scherk’s graph, the critical probability of Bernoulli bond percolation is less than  $1/2$ . The infinite cluster is transient for  $p > 1/2$  and is recurrent for  $p < 1/2$ .