General Mathematics Seminar
of the
University of Luxembourg
in cooperation with the
Luxembourg Mathematical Society

July, 2013

Tuesday, July 2, 2013 at 17:00 **Campus Kirchberg, Room B02**

Olivier Raimond
(Université Paris 10)

Strongly reinforced Vertex-Reinforced-Random-Walk on the complete graph.

Abstract: We study Vertex-Reinforced-Random-Walks on the complete graph with weights of the form $w(n) = n^\alpha$, with $\alpha > 1$. Unlike for the Edge-Reinforced-Random- Walk, which in this case localizes a.s. on 2 sites, here we observe various phase transitions, and in particular localization on arbitrary large sets is possible, provided α is close enough to 1. This is joint work with Michel Benaim and Bruno Schapira.

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Tuesday, July 23, 2013 at 17.00 **Campus Kirchberg, Room B02**

Prof. Günter Last
(Karlsruhe University)

Unbiased shifts of Brownian motion and balancing random measures.

Abstract: In this talk we consider a two-sided standard Brownian motion $B = (B_t)_{t\in\mathbb{R}}$. A random time T is an unbiased shift of B, if T is a measurable function of B, such that the time and space shifted process $(B_{T+t} - B_T)_{t\in\mathbb{R}}$ is a Brownian motion independent of B_T. We characterise unbiased shifts in terms of allocation rules balancing additive functionals of the Brownian motion. Moreover, for any probability distribution ν on $\mathbb{R}$ we construct an unbiased shift $T \geq 0$ that is a stopping time and such that B_T has distribution ν. A key ingredient of our approach is the transport and allocation theory for stationary random measures and a new theorem on the existence of allocation rules balancing jointly stationary diffuse random measures on $\mathbb{R}$. We also discuss moment and minimality properties of unbiased shifts.

The talk is based on joint work with Peter Mörters (Bath) and Hermann Thorisson (Reykjavik).