

*Prof. Fabio Nobile*

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**SEMINAR OF NUMERICAL ANALYSIS**

➤ **WEDNESDAY 11 JULY 2012 - ROOM MA A3 30 - 16h15**

*Dr. Madalina Deaconu*

*INRIA Centre de Recherche Nancy-Grand Est & Institut de Mathématiques Élie Cartan,  
will present a seminar entitled :*

**“A random walk on moving spheres algorithm approaching hitting times of Bessel processes”**

**Abstract:**

In this talk we will present a new method for the simulation of the hitting times of Bessel processes. Explicit formulas, via Laplace transform, are already known for these hitting times but they are not easy to use for numerical purposes.

In this new approach, we combine the method of images for the first hitting time of a non-linear boundary for the Brownian motion with the random walk on the spheres method for the case of the heat equation. Our procedure can be adapted for the Cox- Ingersoll-Ross process and can be applied in problems arising from finance.

This work was done in collaboration with Samuel Herrmann (University of Burgundy, France).

Lausanne, 11 June 2012/FN/fb