Postdoctoral position

At the Centre d'Etudes Nucléaires de Bordeaux Gradignan (CENBG)
Chemin du Solarium, BP120, 33175 Gradignan, France

Project:

A post-doctoral position will be available from December 2012 in the field of microdosimetry by means of Monte Carlo simulations. The present project is supported by the INSERM under the acronym MICRONAUTE for (MICROdosimetry in Neuroendocrine tumors treAted by radionUclide ThErapy), the main objective consisting in developing an accurate Monte Carlo simulation able to describe - at the cellular scale - the disintegration of the most commonly used radio-isotopes in labeled radio-therapy.

In this context, most of the existing computing codes are nowadays developed on a CPU architecture. However, since Monte Carlo simulations are statistical methods, it is evident that their accuracy largely depends on the number of simulated particle histories. Therefore, despite the vast development in computer architecture and increase in processor clock speed in the past years, the efficiency of the currently available Monte Carlo codes is still not completely satisfactory essentially for routine clinical applications in radiotherapy.

The presented project proposes to overcome these limitations in developing an accurate GPU (general-purpose graphics processing units)-Monte Carlo code in which all the charged particle induced interactions will be described in details via theoretical differential as well as total cross sections.

The needed efforts will be focused onto the setting up of the GPU architecture and the implementation of our home-made Monte Carlo simulation (called CELLDOSE) onto the GPU platform.

Candidate prerequisites: Preferably a PhD in Informatics or Physics, strong experience in GPU computing.

If you are interested, please send an email of interest with your CV and 2-3 professional references including complete contact details to champion@cenbg.in2p3.fr.

Starting date and duration: January 2013, two years.

Net salary: ~2000 € per month (~ 2500 € gross).