

**Post-doctoral position at ENS Lyon, Physics Laboratory:  
"Dynamics of contact networks"**

The Physics Laboratory of ENSL (LP-ENSL) offers a post-doctoral position on the study of the dynamics of contact networks. Complex networks occur in many disciplines (from biology to computer science) and, despite the successes of complex network research in the study of generic properties and methods, one point has often been left out of studies: complex networks have usually an inherent dynamical nature. The focus of this post-doc is to bring together methods from statistical signal processing (especially nonstationary and/or multi-scale methods) and statistical physics (in particular of complex networks), to study complex networks with dynamics. The specific application intended will be on social interaction networks between people. Recent experiments have been conducted with digital RFID device to measure the dynamics of face-to-face interaction networks (see sociopatterns.org). These interactions are particularly important for probing various aspects of human behaviour, especially propagation of information or of disease. This latter question about dissemination of disease is of particular importance and will be a case application for the work to be done.

The candidate will have expertise in signal processing or statistical physics (preferentially, in both). He/She will work inside the Physics Laboratory of the ENS of Lyon, in collaboration with the Sisyph team (Signal, System and Physics) : P. Abry, P. Borgnat and P. Flandrin; and with J.-F. Pinton (Physics Lab., ENS Lyon) and A. Barrat (CPT, Marseille) (both involved in the SocioPatterns project). The application to the study of infection propagation will benefit from a collaboration with the Lyon Hospital.

The post-doctoral position is open immediately and should begin before the end of 2011. The position is for 12 months. It is hosted at the ENS of Lyon (Physics Lab'), [www.ens-lyon.fr/PHYSIQUE](http://www.ens-lyon.fr/PHYSIQUE). The remuneration is around 2000 euros per months.

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