



**THE ECOLE NORMALE SUPERIEURE DE CACHAN**

**UNIVERSITY PARIS-DIDEROT (Paris 7)**

**FRANCE**



**1-year POSTDOCTORAL FELLOWSHIP**

**Salary 2400 € gross income per month**

Hybrid nanomaterials attract considerable interest for the complementary properties arising from the combination of inorganic and organic components. Among them, magnetofluorescent nanoparticles appear extremely attractive for non-invasive probing and imaging of biological tissues. The present project involves an original and versatile electrostatics-based approach toward the elaboration of bimodal materials associating superparamagnetic iron oxide nanoparticles and fluorescent organic nanospheres. Such a route enables the upward control of the size of the objects to be assembled while keeping their intrinsic characteristics (magnetism, emission) in water. The subject will focus both on the fabrication and the optical and magnetic studies of these nanomaterials in solution and living cells. It will be developed in tight collaboration with three laboratories, each specialized in chemistry, biology and physics located on two different sites (ENS Cachan and Paris Diderot) of the Ile-de-France area (France). Candidates for the post-doctoral position should have an expertise in the elaboration of nanoparticles and molecular linear and non-linear spectroscopy. Knowledge in cell culture and /or organic synthesis would be largely appreciated.

If prospective applicants would like to discuss the posts informally, please contact Dr. Eléna Ishow [elena.ishow@ens-cachan.fr](mailto:elena.ishow@ens-cachan.fr) or Dr. Jean-François Berret [jean-francois.berret@univ-paris-diderot.fr](mailto:jean-francois.berret@univ-paris-diderot.fr)

**Applications should include a full CV together with names and addresses of two referees.**

**Ecole Normale Supérieure de Cachan**  
*Photophysics and Photochemistry of Supra- and Macromolecules- CNRS UMR 8531*  
61 avenue du Président Wilson  
94 235 Cachan Cedex / France  
e-mail : [elena.ishow@ens-cachan.fr](mailto:elena.ishow@ens-cachan.fr)  
Phone : +33-1-4740-7660 / Fax : +33-1-4740-2454

**Université Paris-Diderot**  
*Laboratoire Matière et Systèmes Complexes*  
10 rue Alice Domon et Léonie Duquet  
75205 Paris Cedex 13 / France  
email [jean-francois.berret@univ-paris-diderot.fr](mailto:jean-francois.berret@univ-paris-diderot.fr)  
Phone : +33-1-5727-6147

#### References

[1] E. Ishow, A. Brosseau, G. Clavier, K. Nakatani, P. Tauc, C. Fiorini-Debuisschert, S. Neveu, O. Sandre, A. Léaustic *Chem. Mater.* **2008**, 20, 6597. [2] J. Fresnais, J.-F. Berret, B. Frka-Petesic, O. Sandre, R. Perzynski *Adv. Mater.* **2008**, 20, 3877. [3] L. Qi, J.-P. Chapel, J.-C. Castaing, J. Fresnais, J.-F. Berret *Soft Matter* **2008**, 4, 577. [4] H. Rabbani-Haghighi, S. Forget, S. Chénais, A. Siove, M.-C. Castex, E. Ishow *Appl. Phys. Lett.* **2009** in press. [5] L.-H. Liu, K. Nakatani, E. Ishow *New. J. Chem.* **2009** doi: 10.1039/b902018g.