



# Engineer

Funding available immediately

## Computational Analysis, Visualization and Modeling of Redox Signaling Networks

### Project description

The purpose of this project is to develop a bioinformatics tool for the visualization of massive proteomic datasets of redox signaling networks. These are made understandable through a large and high-resolution visualization wall to analyze the network dynamics, based on quantitative and time-resolved proteomic technology allowing detection of nitrosylation and glutathionylation. Structural interpretations will be enabled through an automated modeling pipeline linking to several human mitochondrial diseases. We are seeking a highly motivated candidate to design and implement a **next generation bioinformatics visualization platform**. The candidate will develop a tool for modeling the 3D structure of all modified proteins. The generated data will feed into visualization of the redox network circuitries. We will achieve this through a graphical representation of the redox system and its temporal evolution with the possibility to explore interconnections between different systems. Project foundations were previously established (see e.g. UnityMol), providing a well-defined framework to get started. This position is a unique training opportunity in a multi-disciplinary environment combining several leading groups in academic research.

### Research facilities

This LBT CNRS research unit is located in central Paris and conducts research on scientific visualization and computational biology. LBT participates in Equipex and Labex excellence in science programs. As part of the **CACSICE Equipex**, the candidate will have access to a **large high-resolution display wall**.

### About the host institute

The "Institut de Biologie Physico-Chimique" was created in 1930 by the Foundation Edmond de Rothschild. It is associated with the **CNRS** (Centre National de la Recherche Scientifique), a leading international scientific institution offering an exceptional environment to scientists early in their career, with a dynamic international exposure animated by regular seminars and meetings.

### Qualification and experience

A PhD or engineer degree in relevant fields (Computer Science, Visualization, Biophysics/Bioinformatics,..) and at least one publication in a peer reviewed journal or at a leading conference are required. The successful applicant should have excellent developer skills and a strong background in software development (graphics, shader programming, real time applications) with significant experience either in 3D visualization or in modelling, animation or game design software (Unity, Blender, Unreal). The candidate should also be familiar with at least one modern programming language. Evidence of the ability to undertake advanced software development is essential, as are good communication and organizational skills.

### Closing date: 2nd November 2016

Interested candidates should send a CV and a statement of research interests, including the names of three referees with contact information, as PDF document to [baaden@ibpc.fr](mailto:baaden@ibpc.fr).

### Executive summary:

When? 18 months starting ASAP

**Where?** Laboratoire de Biochimie  
Théorique, Paris, France.

**Salary:** starting 2200 €/month  
(before tax)

**Team Leader:** Marc Baaden

**Websites:** [http://www.baaden.ibpc  
.fr](http://www.baaden.ibpc.fr)

[unitymol.sourceforge.net](http://unitymol.sourceforge.net)