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CBS – Centre de Biochimie Structurale  
Montpellier (France)  
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*Group of Single Molecule Biophysics*

**Postdoc position**  
***Probing the angular dynamics of biological systems***  
***with the optical torque wrench***

The ability to apply *forces* to single molecules and bio-polymers has fundamentally changed the way we can interact with and understand biological systems. Yet, for many cellular mechanisms, it is rather the *torque* that is the relevant physical parameter. Novel single-molecule techniques that utilize this parameter are now poised to contribute to novel discoveries.

In this project, we will develop and improve a novel optical trapping technique (the ***optical torque wrench***), which can simultaneously transfer and measure torque to microscopic nanofabricated actuators. We will focus on the angular dynamical behavior and response to external torque of the ***bacterial flagellar motor***, a complex and powerful rotary nano-motor that rotates the flagellum of bacteria in order to propel the cell and allow chemotaxis.

The project is founded on a highly multidisciplinary approach in which fundamental optics, novel nano-particle fabrication, and molecular and cellular biology are integrated.

*We are looking for a strong and motivated candidate for one postdoc position, with a good knowledge in developing optical systems. It will be advantageous to have good knowledge of software development (e.g. labview, matlab), nano-fabrication and biophysics.*

Please send the application, including CV, cover letter and the names of 2-3 references, to Francesco Pedaci ([francesco.pedaci@cbs.cnrs.fr](mailto:francesco.pedaci@cbs.cnrs.fr)).

Publications:

Nature Physics 7, 259 (2011), ACS Nano 5, 1418 (2011), Optics Express 20, 3787 (2012)

