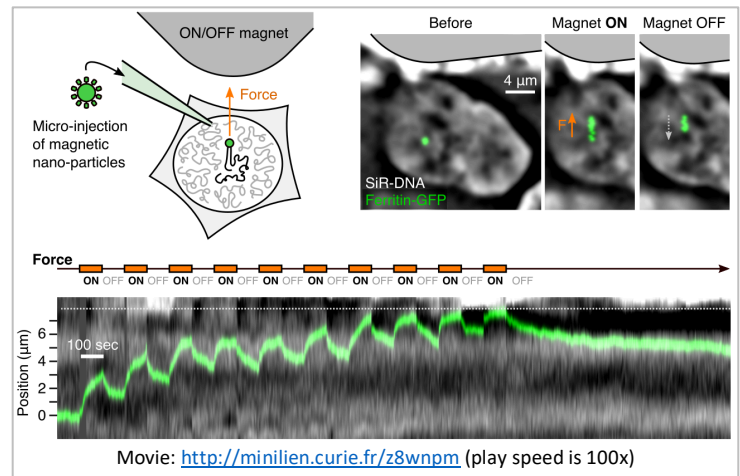


– Postdoc and Research Engineer positions –

Chromosome mechanics inside living cells

Location: Institut Curie, Paris.
Positions: **Postdoc** (24 mo)
Research engineer (18 mo)
Possibilities of prolongation.
Start date: Ideally, **early 2022**.

The team of Antoine Coulon at Institut Curie (<http://www.coulonlab.org/>) is recruiting **1 engineer** and **2 postdoctoral researchers** with a strong background and interest in **interdisciplinary science**.



Our team studies the **physical organization, dynamics and mechanics of chromosomes** in the mammalian nucleus and their relationship with functional genomic processes. We take a quantitative approach at the **physics-biology interface**, combining microscopy, mechanical micro-manipulation and physical modeling. We recently developed a **new technology to mechanically micro-manipulate chromosomes inside living cells** by exerting a force using magnetic nanoparticles onto a genomic locus. <https://doi.org/10.1101/2021.04.20.439763>

Postdoctoral positions

Projects – Based on our new micro-manipulation technology, the selected candidates will investigate chromosome mechanics in the nucleus, in physiological and perturbed conditions, as well as the biological response and adaptation of the cell to such mechanical perturbations.

Qualifications – The successful applicant should hold a PhD in Biology, Physics or Chemistry and have a strong interest in genome organization, chromosome biology and quantitative approaches. Prior experience with live fluorescence microscopy and cell biology techniques and good level of programming (Python) is recommended. Skills also considered a plus include biochemistry, bioinformatics and theoretical biophysics.

Engineer position

Project – The selected candidate will develop a new way to apply and modulate a magnetic field onto cells. The work will include electromagnetic simulations/calibration, generation of custom-made magnetic tips, micro-controller programming and interfacing with the microscope software for on-the-fly live feedback processing.

Qualifications – The successful applicant should hold an Engineering degree in nanotechnologies, biotechnology and/or electrical engineering. Experience in microfabrication/electroplating, Arduino programming, electronics and scientific programming (Python, SciPy), as well as advanced theoretical knowledge in electromagnetism will be highly recommended.

Context – Institut Curie is an internationally renowned research institution bringing together biologists, physicists, chemists, bioinformaticians and clinicians. It is an inclusive, equal opportunity employer. Our team is part of the **'Physical Chemistry'** unit (UMR168), with physicists working on diverse biological topics and the **'Nuclear Dynamics'** unit (UMR3664), with biologists studying different aspects of the cell nucleus.

Funding will be provided by ANR, Cell(n)Scale, DEEP and/or ERC funds depending on the position and project. The projects will benefit from our collaborations with the Fachinetti and Coppey/Hajj teams (Institut Curie), Mirny team (MIT, USA), Pons team (ESPCI) and Giovannangeli team (MNH).

Application – Interested candidates should contact Antoine Coulon at recruitment@coulonlab.org with their CV and a motivation letter, at any time and no later than **January 16, 2022**.