Team SOFT (PI: Damien Baigl)

CPCV (UMR 8228), Dept of Chemistry, ENS

Damien Baigl

Mathieu Morel

Sergii Rudiuk

Ayako Yamada

Indicate in which axis your team relates to:

Axis 1: Controlling and programming biological living matter

- Microfluidics (micro-environment & scaffolds)
- Gene circuits (cell reprogramming)
- DNA origamis (programmed interaction with cells)

Axis 2: Emergence of spatial and temporal organization in living matter

- DNA self-assembly
- Cellular self-organization in multicomponent organoids
- *In vivo*/*in vitro* coacervates/DNA nanogels

Axis 3: Information processing and dynamics of biological active matter

- Synthetic cell communication, cell reprogramming

Team expertise:

- **Soft Matter**
  (self-assembly, colloids, photo-actuation, polyelectrolytes)
- **DNA nanotechnology at cell interface**
- **Nanobiotechnology**
- **Synthetic Cells**
- **Gene circuits**
- **Microfluidics & microfabrication**
  (to investigate synthetic cells, living cells and living tissues)
- **Organs-on-chip**
  (especially brain organoids)

Question of Interest and/or Collaboration wanted:

- **Physicists/Mathematicians/Computer scientists** for **modelling and design the dynamic behaviours of our experimental systems:**
  - Gene networks
  - Isothermal DNA self-assembly dynamics
- **Biologists interested by our tools:**
  - Microfluidics for dynamic micro-environment
  - Microfabrication for smart scaffolds
  - Soft DNA nanotechnology to control spatio-temporal distribution of proteins/peptides/ligands, at the nanoscale (DNA origamis) or transfected inside cells (DNA nanogels)