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Type: Oral presentation

Bacterial portraits: Density shaping of photokinetic *E. coli*

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In nature, some motile microorganisms have evolved in such a way to respond to environmental light stimuli, essentially allowing them to find better living conditions.

In the lab, it is possible to engineer bacterial cells so as to make them photokinetic, that is, to control their speed by means of the light shone on them: these cells move faster when exposed to high-intensity light, whereas slow down to dim light.

I will present some experiments performed with my collaborators [Ref.] in which we observed the dynamics of millions of photokinetic *E. coli* cells and how it has been possible to arrange them into complex and reconfigurable density patterns using a digital light projector.

Such experiments give us insights on the complex biological mechanisms of photokinesis and provide a practical and efficient strategy to achieve spatial and temporal control of cell concentration, for instance by exploiting such living propellers for moving microdevices or drug carrier.

[Ref.] Frangipane et al., *eLife* 2018;7:e36608 doi: 10.7554/eLife.36608

Field

Biology/Light

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Auteur principal: Dr DELL'ARCIPRETE, Dario (LPENS)

Orateur: Dr DELL'ARCIPRETE, Dario (LPENS)

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