Collective motion in populations of colloidal bots
DENIS BARTOLO, ENS Lyon

One of the origins of active matter physics was the idea that flocks, herds, swarms and shoals could be quantitatively described as emergent ordered phases in self-driven materials. From a somehow dual perspective, I will show how to engineer active materials out of colloidal flocks. I will show how to motorize colloidal particles capable of sensing the orientation of their neighbors and how to handle them in microfluidic chips. These populations of colloidal bots display a non-equilibrium transition toward collective motion. A special attention will be paid to the robustness of the resulting colloidal flocks with respect to geometrical frustration and to quenched disorder.