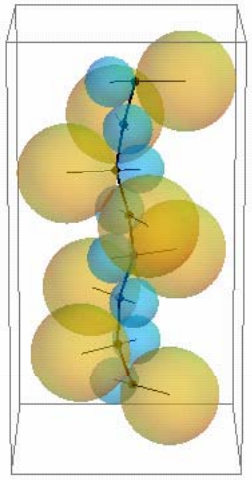
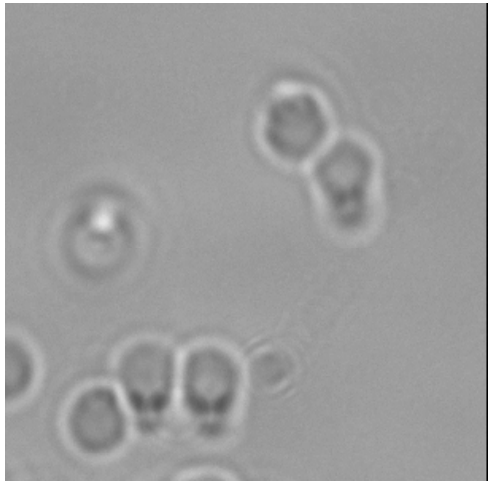
NYU MRSEC IRG1 Highlight: Making colloidal helices

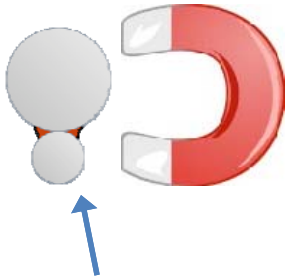
a collaboration with Prof. J. Bibette at the ESPCI in Paris



Need microscopic swimmers for transport and mixing in micro- and nanofluidic devices.

The NYU-ESPCI collaboration assembles colloidal helices from asymmetric colloidal dumbbells, shown as yellow-blue pairs in the movie. The dumbbells are made with a magnetic belt around the yellow-blue sphere point of contact so that the dumbbells align and assemble into a helix with a magnetic field is applied.





dumbbell with magnetic belt (red)

The methods to make the dumbbells that were developed by NYU researchers are combined with expertise in magnetic assembly at the ESPCI. NYU researchers developing hydrodynamic models have found that the direction of swimming changes depending on the size ratio of the particles.

Nature **2008**, *455*, 380