

Electronic Supplementary Information

Reconfigurable Responsive Structures Assembled from Magnetic Janus Particles

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Description of the Supplementary Movies

Movie_1.avi

A time-lapse movie (5 s per frame) of a short staggered chain of Janus PS particles (4.1 μm in diameter with 34 nm thick coating). The chain orients with the magnetic field created by two permanent magnets, as shown in Fig. 1B. The magnets are placed on a circular stage and rotated around the observation cell, keeping the distance between them constant.

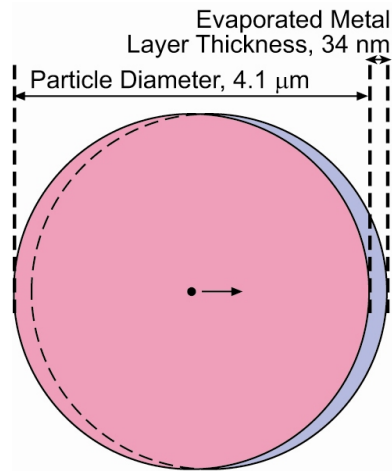
Movie_2.avi

A real-time movie of several staggered chains of Janus PS particles (4.1 μm in diameter with 34 nm thick coating). The chains orient with the magnetic field created by two permanent magnets rotated manually on a circular stage, as shown in Fig. 1B. When the rotation is rapid, the chains can break in pieces, and reform again later.

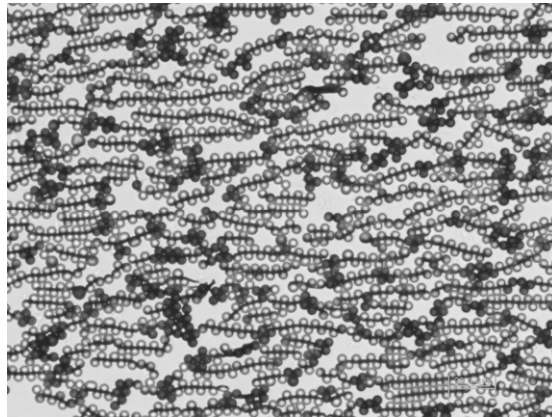
Movie_3.avi

A time-lapse movie (5 s per frame) of Janus PS particles (4.1 μm in diameter with 34 nm thick coating). A single Janus particle moves along a gradient of an applied magnetic field. It approaches a cluster of other particles, changes trajectory substantially due to the local magnetic field from the cluster and finally sticks to it. Note the long distance of the action of the magnetic forces between the cluster and the particle.

Supplementary Figures



Supplementary Fig. 1. The metal coating on the particles was modeled by a crescent-shaped difference between two circles with diameters equal to those of the particles, and the offset equal to the coating thickness. Schematic not to scale. The offset has been exaggerated for visual clarity.



Supplementary Fig. 2. Dense staggered chains of Janus PS particles (4.1 μm in diameter with 34 nm thick coating). At such high surface concentration, even upon removal of the chain-directing field, the chains largely keep their orientation due to lack of space.