Special Issue

Magnetic Microrobots

Message from the Guest Editor

Magnetic microrobots are one of the three types of untethered medical devices at a small scale which are actuated by external magnetic field gradients, rotating magnetic fields, or a combination of them. They represent a biocompatible solution for performing medical tasks in complex environments or even in living organisms with high controllability. For instance, a helix of a magnetic material rotates around its axis under a rotating magnetic field. Changing the field's orientation and frequency it is possible to control the microrobot direction and speed. Such 'magnetic swimmers' mimic the tails that propel bacteria or sperm cells, and have been shown by many groups to deliver drugs, to transport cells or even as a sensor for active microrheology measurements. Magnetic microrobots come from different sizes and move through diverse biological environments. They are made with different materials and shapes and can be combined with other energy sources, biological or chemical, for propulsion or other triggered functions.

Guest Editor

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