

Nano in Medicine & Health

The robotics part of micro and nano robotics

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Abstract

Micro and nano robotics has made incredible strides since becoming a research topic just over two decades ago. Much of the progress has been in material selection and fabrication, and paths forward in developing clinically relevant biocompatible and biodegradable micro and nano robots are becoming clear. Our group, as well as others, maintain that using biocompatible magnetic composites with externally generated magnetic fields and field gradients is perhaps closest to clinical application. One of the most challenging aspects of the field is in the development of the magnetic navigation system (MNS) that generates the fields and gradients needed for microrobot locomotion. In this talk, I will present an overview of MNSs and show how these systems are fundamentally robotic in the way they must be designed and controlled. Decades of work in robotic manipulation can be brought to bear on this problem as we move forward in bringing MNS technology to the clinic. I will also look at more recent efforts in creating more intelligent micro and nano robots that exhibit increasingly complex behaviors, some of which can even be programmed *in situ*.

Introductory Talk by **Prof. Maria Jose Esplandiu**

**Unraveling the operating mechanisms of
chemically powered micro-nano motors**

CSIC Scientific Researcher at ICN2 Magnetic Nanostructures group

Thursday 21 April at 14:00 (UK) / 15:00 (CET)

HYBRID Event from ICN2 Seminar Room

Online at - <https://icn2.cat/en/events>