

Special Issue on  
**Applications of Magnetic Nano/Microparticles in  
“Lab-on-a-Chip” and Precision Medicine: In vitro and In  
silico**

# CALL FOR PAPERS

Magnetic nano/microparticles have gained considerable attention as active agents in various biomedical domains and have proven to be highly promising for studying biological systems, both in vivo and in vitro. The ability to remotely control their magnetization, localization, and temperature by external magnetic fields coupled with advanced particle synthesis and functionalization technologies has opened up new possibilities in various biomedical applications.

The advent of microfabrication and microfluidic technologies has further expanded these horizons and allows the manipulation of a single biological entity from a single molecule up to a cell, as shown by the plethora of scientific publications during the last two decades. The rapid advances in these technologies are paving the way towards the integration of complex functions into a microscale space (lab-on-a-chip) which would represent a real breakthrough in various fields in biomedicine.

Several products that rely on magnetic particles are either introduced or about to enter the healthcare market as well as research laboratories. Nonetheless, the future of this technology is vast, and many possibilities are yet to be explored.

This special issue intends to attract the most relevant work in magnetic nano/microparticles in health care, from the state-of-the-art contributions to critical reviews on the topic which will highlight new advances in this field, with an emphasis on the interface between the technological advancements, e.g., the integration of magnetic tools in microfluidic systems (lab-on-a-chip), and high impact applications.

Potential topics include but are not limited to the following:

- ▶ Magnetic-activated cell sorting
- ▶ Magnetic bead and biomolecule separation
- ▶ In vitro diagnostic based on magnetic beads
- ▶ Microfluidic scaffolds for tissue engineering
- ▶ Magnetic bead-based biosensing using Tunnel Junction, Hall Effect, Spin Valve, GMR, and so on
- ▶ Chip-based pathogen detection in clinical and environmental samples
- ▶ Microfluidic-based controlled drug delivery using magnetic carriers (beads)
- ▶ On-chip cell mechanical characterization using magnetic beads

Authors can submit their manuscripts through the Manuscript Tracking System at <https://mts.hindawi.com/submit/journals/jhe/amnpm/>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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