Magnetic small-scale robots control from individual to collective

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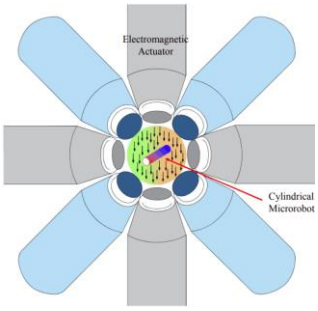
Abstract

Magnetic microrobots (Fig. 1) have emerged as a groundbreaking tool for minimally invasive medical procedures, offering a new frontier in patient care. These sophisticated devices are classified into three main categories: tethered, untethered, and collective also known as microswarms. While initial research primarily focused on the control of individual microrobots, the complex demands of certain medical applications, such as targeted drug delivery, necessitate the development of techniques for collective control. This presentation will explore the advancements and necessary technology to transition from individual (Fig. 1 (a)) to collective control of medical microrobots (Fig. 1 (b)), underscoring their potential to revolutionize minimally invasive interventions.

(a) 

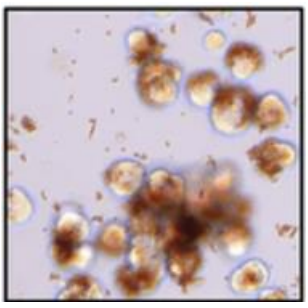
(b) 

Figure 1: Depicts different types of magnetic microrobots (a) tethered individual microrobot [1], and (b) collective microrobots [2].

References

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