

Soft, miniaturized untethered grippers for pick and place applications

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Abstract

Millimeter and sub-millimeter sized soft-robotic devices could make biological manipulation and surgery less invasive by functioning as an alternative to larger medical biopsy instruments such as tethered endoscopes or/and electrical wired probes. Here, we discuss environmentally stimuli responsive microbots composed of lithographically patterned self-folding grippers that can close and open in response to physiological temperatures. We discuss closed-loop control of ferromagnetic soft-grippers and discuss possibilities to enable biodegradability for enhanced safety in medical applications.