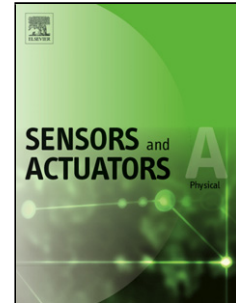


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Design and control of a novel asymmetrical piezoelectric actuated microgripper for micromanipulation

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Highlights

- A novel asymmetrical piezoelectric actuated microgripper for micromanipulation was presented.
- The microgripper has a large amplification factor.
- Both the position and force of the microgripper were regulated.
- Fast and precision grasping and releasing operations have been realized through the microgripper.

Abstract: Microgripper is an important tool in high precision micromanipulation task, which directly affects the quality and efficiency of micromanipulation. This paper presents the design and control of a novel asymmetrical microgripper driven by a piezoelectric (PZT) actuator. The developed microgripper is designed as an asymmetrical structure with one movable jaw, so it has the advantages of no dense mode and fixed locating datum compared with the symmetrical microgripper with two movable jaws. The main body of microgripper is a compact flexure-based mechanical structure with a three-stage amplification mechanism. Based on the three-stage amplification structure,

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