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电流变柔性微致动器致动过程研究

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STUDY ON THE FLEXIBLE MICRO ACTUATING PROCESS WITH ELECTRO RHEOLOGICAL FLUID

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摘要

利用电流变液体阻尼阀效应设计了原型电流变柔性微致动器，建立了相应的力学模型，进行了柔性微致动器致动过程实验研究和三维致动过程的计算机图形仿真，并对电流变柔性微致动过程的位移、速度和加速度等运动学和动力学特征进行了分析研究。

关键词： 电流变体 柔性微致动器 微机械

Abstract:

The principles of flexible actuation are offered and a mechanical model of the flexible micro actuator is established. A prototype of ER flexible micro actuator is designed based on the damping valve effect of ERF. By analysis of the actuator motion process of the FMA,a simulation of the actuating process in three dimensions of the FMA is formed.Then, some kinematic and dynamic parameters of the ER flexible actuating process, such as displacement, velocity and acceleration, are analysed.

Keywords: electror heological fluids flexible micro-actuators micro-electro-mechanical system

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