

Critical Analysis of Different Actuation Techniques for a Micro Cantilever

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Abstract : The objective of this work is to carry out a critical comparison of different actuation mechanisms like electrostatic, thermal, piezoelectric, and magnetic with reference to a microcantilever. The relevant parameters like force generated, displacement are compared in actuation methods. With these results, they help in choosing the best actuation method for a particular application. In this study, Comsol/Multiphysics software is used. Modeling and simulation are done by considering the microcantilever of same dimensions as an actuator using all the above-mentioned actuation techniques. In addition to their small size, micro actuators consume very little power and are capable of accurate results. In this work, a comparison of actuation mechanisms is done to decide the efficient system in the micro domain.

Keywords : actuation techniques, microswitch, micro actuator, microsystems

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