Design and fabrication interdigitated electrodes piezoelectric device

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ABSTRACT

The conventional piezoelectric ceramic has fragile shortcoming when being used, the development of novel piezoelectric component possessing high sensing or actuating performance as well as flexible structure is the future tendency. In order to improve sensing and actuating capability of the piezoelectricity component, poling electrode arranged with surface interdigital pattern is required for high performance 33 d piezoelectric property. This study performs an optimal analysis for the design of the electrode arrangement utilizing commercial finite element code, ANSYS. The poling field is analyzed with various sizes of electrode pitch and thickness of the piezoelectric sample under different poling voltages. And the optimal electrode pitch and poling voltage under some thickness is obtained. The numerical results are verified by experimental result. It is expected the smart piezoelectric component owns flexible ability as well as high performance of sensing and actuating capability.

Keywords : Piezoelectric, interdigitated electrodes , poling

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