

- **ELE-01-013**

An optimal stack piezoelectric actuator for vibration control

Veturia Chiroiu

Institute of Solid Mechanics, Romanian Academy

Ctin Mille 15, P. O. Box 1-863

70701 Bucharest, Romania

Phone: +40 1 3153810

Fax: +40 1 3126736

Email: ligiamunteanu@hotmail.com

The common feature of stack actuators is that many thin layers of piezoelectric material, typically PZT, are glued or cofired together with an electrode between each layer. This arrangement allows the mechanical displacement to sum in series while the electrical properties remain in parallel. The paper solves an inverse problem based on a genetic algorithm for determining the number of layers, their thicknesses and properties, so that the displacements and strains to be large, for lower voltage levels. Vibration isolation of some structures like the engine from the fuselage in airplanes is studied then, by using an optimal stack actuator.