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### **Abstract**

Two-dimensional (2-D) equations for coupled extensional and flexural motions of a two-layered, elasticpiezoelectric plate (unimorph) are derived systematically from the 3-D equations of linear piezoelectricity. For static problems, the equations are simplified by the introduction of a stress function. The equations are used to analyze two problems of a circular disk unimorph under a uniform mechanical load and a voltage, and a concentrated load and a voltage. Analytical solutions are obtained and examined.

### **Keywords**

Piezoelectric unimorph, Extension, Flexure