



The Modeling of Piezoceramic Patch Interactions with Shells, Plates and Beams (Paperback)

By National Aeronautics and Space Adm Nasa

Independently Published, United States, 2018. Paperback. Condition: New. Language: English. Brand new Book. General models describing the interactions between a pair of piezoceramic patches and elastic substructures consisting of a cylindrical shell, plate and beam are presented. In each case, the manner in which the patch loads enter both the strong and weak forms of the time-dependent structural equations of motion is described. Through force and moment balancing, these loads are then determined in terms of material properties of the patch and substructure (thickness, elastic properties, Poisson ratios), the geometry of the patch placement, and the voltages into the patches. In the case of the shell, the coupling between bending and inplane deformations, which is due to the curvature, is retained. These models are sufficiently general to allow for potentially different patch voltages which implies that they can be suitably employed when using piezoceramic patches for controlling system dynamics when both extensional and bending vibrations are present. Banks, H. T. and Smith, R. C. Unspecified Center NAS1-18605; NAS1-19480; RTOP 505-90-52-01.



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