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# Simulation and Modelling of Smart Beams with Robust Control Subjected to Wind Induced Vibration

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## ABSTRACT

This paper presents some recent developments in modelling and numerical analysis of piezoelectric systems and controlled smart structures based on a ?nite element formulation with embedded control. The control aims at vibration suppression of the structure subjected to external disturbances, like wind and noise, under the presence of model inaccuracies, using the available measurements and controls. A smart structure under dynamic loads is analysed and comparison between results for beam with and without control is made. The numerical results show that the control strategy is very effective and suppresses the vibrations of the structure.

## KEYWORDS

Smart Structures; Finite Element Formulation; Uncertainty; Robust Performance; Reduced Order Control

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