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Controlling flexible structures with second order actuator dynamics

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Title:	CONTROLLING FLEXIBLE STRUCTURES WITH SECOND ORDER ACTUATOR DYNAMICS
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Abstract:	The control of flexible structures for those systems with actuators that are modeled by second order dynamics is examined. Two modeling approaches are investigated. First a stability and performance analysis is performed using a low order finite dimensional model of the structure. Secondly, a continuum model of the flexible structure to be controlled, coupled with lumped parameter second order dynamic models of the actuators performing the control is used. This model is appropriate in the modeling of the control of a flexible panel by proof-mass actuators as well as other beam, plate and shell like structural numbers. The model is verified with experimental measurements.