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Animesh Chakravarthy, Katie A Evans, Johnny Evers and Lisa M Kuhn*
(lmk012@latech.edu), P.O. Box 10348, Ruston, LA 71272. *Target Tracking Strategies for a Nonlinear Aircraft Model.*

Aeroelastic wing micro aerial vehicle (MAV) concepts are being explored for military and civilian applications. However, on the whole, the issues of control of MAVs are largely unexplored. Distributed parameter modeling and control theory is employed in an effort to achieve agile flight potential of flexible, morphable wing MAV airframes. Two Euler-Bernoulli beams connected to a rigid mass are used to model an aeroelastic wing MAV. For realistic modeling, it is assumed that this multiple component structure is being acted upon by gravity and a nonlinear aerodynamic lift force. The focus of this talk is an effort to employ tools from linear distributed parameter control theory to gain insight into feasibly obtained wing shape, as a bridge to examining optimal wing morphing trajectories for achieving agile flight. (Received September 22, 2010)