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**David A Long\*** (dalong@ncsu.edu), **Anthony M Bloch**, **Jerrold E Marsden** and **Dmitry V Zenkov**. *Relaxed Matching for Stabilization of Mechanical Systems*.

The method of controlled Lagrangians is a technique for stabilizing relative equilibria of mechanical systems with symmetry. In this talk we discuss a modification to this technique that gives greater flexibility to the theory, making it applicable to a broader class of systems. This "relaxed matching" technique is demonstrated in the problem of the pendulum on a rotor arm. (Received September 07, 2008)