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ASYMPTOTIC STABILITY OF AN OVERHEAD CRANE WITH NONLINEAR CONTROL AND VISCOUS DAMPING

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Abstract: Overhead cranes play a crucial role in various industrial applications, including construction, heavy component transport, and machinery handling. In this paper, we study the asymptotic stability of an overhead crane model governed by a semilinear evolution equation. The model incorporates a nonlinear feedback control and a viscous damping term, both of which significantly impact the stability properties. Our analysis focuses on the mathematical formulation, well-posedness, and stability behavior of the system.

Keywords and Phrases: Overhead crane, Nonlinear feedback, Semilinear evolution equations, Asymptotic stability.

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