Nonlinear Control of a Planar Multiaxis Servohydraulic Test Facility using Exact Linearization Techniques

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Abstract: This paper presents a nonlinear control concept of a planar multi-axis servohydraulic test facility. Based on nonlinear model equations including servohydraulic actuator dynamics and test table and payload mechanics a global nonlinear diffeomorphism is derived which maps the model equations into nonlinear canonical form. A nonlinear control law is derived using exact linearization techniques. The lengthy controller expressions are calculated by applying symbolic computer languages.

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