01.06.02 Vol: 124 No. 2 0022-0434 22304673

0022-0434

ZI. LOT B5

ALGERIE

EDITIONS CHIHAB

B.P.744 REGHAIA GG ALGER

Ref: BT PF 160102/09 Df: 3114649-JOURNAL OF DYNAMIC SYSTEMS MEASURES & CO

11.06.02

Transactions of the ASME.

Dynamic Systems and Control Division
Editor, A. GALIP ULSOY

Past Editors, W. BOOK M. TOMIZUKA M. TOMIZUKA D. M. AUSLANDER J. L. SHEARER K. N. REID Y. TAKAHASHI M. J. RABINS

Associate Editors,
Y. CHAIT (2002)
F. GHORBEL (2004)
M. GOLDFARB (2004)
Y. HURMUZLU (2004)
Y. HURMUZLU (2002)
N. MANRING (2003)
E. MISAWA (2003)
R. MUKHERJEE (2004)
N. OL GAC (2004)

Book Review Editor

A. GALIP ULSOY

Executive Committee Chairman, J. L. STEIN
Past Chairman, C. J. RADCLIFFE
Vice Chairman, S. JAYASURIYA
Members, C. W. DE SILVA
G. RIZZONI
Secretary, E. A. MISAWA

BOARD ON COMMUNICATIONS Chair and Vice-President
OZDEN OCHOA

> OFFICERS OF THE ASME President, W. A. WEIBLEN D. L. BELDEN R. E. NICKELL

PUBLISHING STAFF THOMAS G. LOUGHLIN PHILIP DI VIETRO CYNTHIA B. CLARK Managing Editor, Transactions CORNELIA MONAHAN

MARISOL ANDINO

Transactions of the ASME, Journal of Dynamic Systems, Measurement, and Control (ISSN 0022-0434) is ublished quarterly (Mar., June, Sept., Dec.) by The American Society of Mechanical Engineers. Three Park Avenue

CHANGES OF ADDRESS must be receiv headquarters seven weeks before they are to be off-STATEMENT from By-Laws

given the TRANSACTIONS OF THE ASME, JO DYNAMIC SYSTEMS, MEASUREMENT, AND CON the author, and date of publication INDEXED by Applied Mechanics Reviews and I Information, Inc. Canadian Goods & Services Tax F

Journal of Dynamic Systems, Measurement, and Control

Published Quarterly by The American Society of Mechanical Engineers

VOLUME 124 • NUMBER 2 • JUNE 2002

TECHNICAL PAPERS

- 241 A General Framework for Rigid Body Dynamics, Stability, and Control Hooshang Hemami
- 252 Design of Continuous Time Controllers Having Almost Minimum Time Response

M. Kalvon

- 261 A Robust Tracking Controller Design With Hierarchical Perturbation Compensation SangJoo Kwon and Wan Kyun Chung
- 272 Path Tracking Based on Closed-Loop Control for a Quadruped Robot in a **Cluttered Environment**

Xuedong Chen, Keigo Watanabe, Kazuo Kiguchi, and Kiyotaka Izumi

- Robust Control of Pulsed Gas Metal Arc Welding Y. M. Zhang, Liguo E, and B. L. Walcott
- Effects of Diaphragm Compliance on Spring-Diaphragm Pressure **Regulator Dynamics** Mont Hubbard
- Modeling and Control of a Deformable Mirror S. E. Winters, J. H. Chung, and S. A. Velinsky

TECHNICAL BRIEFS

Controlling the Transition From Stable Resting to Tracking Control of an Unstable System

Pai-Hsueh Yang and David M. Auslander

- 307 Parametrization of Reduced Order MIMO Tracking Prefilters With **Optimality Considerations** Matt Bement and Suhada Jayasuriya
- 313 Analysis and Design of Robust Motion Controllers in the Unified Framework

Bong Keun Kim, Hyun-Taek Choi, Wan Kyun Chung, and **II Hong Suh**

- 321 Transient Improvement of Variable Structure Controlled Systems Via Multi-**Model Switching Control** Maria Letizia Corradini and Giuseppe Orlando
- 327 Hopf Bifurcation in PD Controlled Pendulum or Manipulator Tom Bucklaew and Ching-Shi Liu
- Robust Nonfragile Decentralized Controller Design for Uncertain Large-332 Scale Interconnected Systems With Time-Delays Ju H. Park

(Contents continued on inside back cover)

This journal is printed on acid-free paper, which exceeds the ANSI Z39.48-1992 specification for permanence of paper and library materials. ⊚™ @ 85% recycled content, including 10% post-consumer fibers.