

Ref: PF 120201/05 Df: 29981786
JOURNAL OF DYNAMIC SYSTEMS MEASURES & CO
01.06.01 Vol: 123 No. 2
0022-0434 22101144 09.10.01
LIBRIS - C2
144 BOULEVARD KRIM BELKACEM
ALGER
ALGERIE

**JOURNAL
OF
DYNAMIC
SYSTEMS,
MEASUREMENT,
AND
CONTROL**

Transactions of the ASME®

Dynamic Systems and
Control Division
Editor, A. GALIP ULSOY

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

Associate Editors,
Y. CHAIT (2002)
F. CONRAD (2001)
E. FAHRENTHOLD (2001)
S. FASSOIS (2001)
Y. HURMUZLU (2004)
R. LANGARI (2002)
N. MANNING (2003)
E. MISAWA (2002)
S. NAIR (2001)
N. OLGAC (2004)
C. RAHN (2002)
S. SIVASHANKAR (2002)
J. TU (2002)
P. VOULGARIS (2001)

Book Review Editor
A. GALIP ULSOY

Executive Committee
Chairman, C. J. RADCLIFFE
Past Chairman, G. MASADA
Vice Chairman, J. L. STEIN
Members, J. JAYASURIYA
A. RAY
Secretary, C. W. DESILVA

BOARD ON COMMUNICATIONS
Chairman and Vice-President
R. K. SHAH

OFFICERS OF THE ASME
President, JOHN R. PARKER
Executive Director
D. L. BELDEN
Treasurer
J. A. MASON

PUBLISHING STAFF
Managing Director, Engineering
CHARLES W. BEARDSLEY
Director, Technical Publishing
PHILIP DI VIETRO
Managing Editor, Technical Publishing
CYNTHIA B. CLARK
Managing Editor, Transactions
CORNELIA MONAHAN
Production Assistant
MARISOL ANDINO

Transactions of the ASME, Journal of Dynamic Systems, Measurement, and Control (ISSN 0022-0434) is published quarterly (Mar., June, Sept., Dec.) by The American Society of Mechanical Engineers, Three Park Avenue, New York, NY 10016. Periodicals postage paid at New York, NY and additional mailing offices.
POSTMASTER: Send address changes to Transactions of the ASME, Journal of Dynamic Systems, Measurement, and Control, c/o THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS, 22 Law Drive, Box 2300, Fairfield, NJ 07007-2300.

CHANGES OF ADDRESS must be received at Society headquarters seven weeks before they are to be effective. Please send old label and new address.

STATEMENT BY By-Laws. The Society shall not be responsible for statements or opinions advanced in papers or printed in its publications (B7.1, Para. 3).

COPYRIGHT © 2001 by The American Society of Mechanical Engineers. Authorization to photocopy material for internal or personal use under those circumstances not falling within the fair use provisions of the Copyright Act, contact the Copyright Clearance Center (CCC), 222 Rosewood Drive, Danvers, MA 01923, tel: 978-750-8400, www.copyright.com. Request for special permission or bulk copying should be addressed to Reprints/Permission Department.

Reprints from this publication may be made on condition that full credit be given the TRANSACTIONS OF THE ASME, JOURNAL OF DYNAMIC SYSTEMS, MEASUREMENT, AND CONTROL, and the author, and date of publication be stated.

INDEXED by Applied Mechanics Reviews and Engineering Information, Inc. Canadian Goods & Services Tax Registration #126148048.

Journal of Dynamic Systems, Measurement, and Control

Published Quarterly by The American Society of Mechanical Engineers

VOLUME 123 • NUMBER 2 • JUNE 2001

TECHNICAL PAPERS

- 153 Dynamic Optimization of Lean Burn Engine Aftertreatment
Jun-Mo Kang, Ilya Kolmanovskiy, and J. W. Grizzle
- 161 Nonlinear Longitudinal Controller Implementation and Comparison for Automated Cars
Xiao-Yun Lu, Han-Shue Tan, Steven Shladover, and J. Karl Hedrick
- 168 Numerical Procedure for the Simulation of Wheel/Rail Contact Dynamics
Ahmed A. Shabana, Marcello Berzeri, and Jalil R. Sany
- 179 Track Tension Estimation in Tracked Vehicles Under Various Maneuvering Tasks
Kunsoo Huh and Daegun Hong
- 186 Automotive Vehicle Engine Mounting Systems: A Survey
Yunhe Yu, Saravanan M. Peelamedu, Nagi G. Naganathan, and Rao V. Dukkipati
- 195 Exponential Stabilization of a Transversely Vibrating Beam by Boundary Control Via Lyapunov's Direct Method
Mehrdad P. Fard and Svein I. Sagatun
- 201 System Identification of a MEMS Gyroscope
Robert T. M'Closkey, Steve Gibson, and Jason Hui
- 211 Adaptive Compensation of Sensor Runout for Magnetic Bearings With Uncertain Parameters: Theory and Experiments
Joga D. Setiawan, Ranjan Mukherjee, and Eric H. Maslen
- 219 The Fault-Tolerant Control of Magnetic Bearings With Reduced Controller Outputs
Uhn Joo Na and Alan Palazzolo
- 225 A New QFT Design Methodology for Feedback Systems Under Input Saturation
Wei Wu and Suhada Jayasuriya
- 233 Searching for Robust Minimal-Order Compensators
Qian Wang and Robert F. Stengel
- 237 A Decentralized Fault Detection Filter
Walter H. Chung, Jason L. Speyer, and Robert H. Chen
- 248 On the Robust Regulator for Linear Systems With Limited Parameter Uncertainty
Jie Huang
- 253 Quick-Return Servomechanism With Adaptive Fuzzy Neural Network Control
Rong-Fong Fung, Faa-Jeng Lin, and Rong-Jong Wai
- 265 Effect of Leg Inertia on Dynamics of Sliding-Leg Hexapods
Fengfeng Xi, Rosario Sinatra, and Wanzhi Han

(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.