

TOPICAL ISSUE

MECHANICS, DYNAMICAL SYSTEMS AND CONTROL:  
THEORY AND APPLICATIONS

**Felipe Monroy-Pérez**  
Guest Editor

**Cutberto Romero-Meléndez**  
Associate Guest Editor

CONTENTS

TOPICAL ISSUE

PREFACE ..... 125

*Tatiana Filippova*

State estimation for a class of nonlinear dynamic systems through HJB technique ..... 127

*Cutberto Romero-Meléndez, and Felipe Monroy-Pérez*

The motion planning problem: differential flatness and nilpotent approximation ..... 133

*Ollin Peñaloza-Mejía, Joaquín Alvarez, and Luis A. Márquez-Martínez*

Discontinuous control design for tracking feasible trajectories in underactuated manipulators ..... 143

*Alfonso Anzaldo-Meneses, and Felipe Monroy-Pérez*

On the class of optimal control problems of 3-step nilpotent systems ..... 151

*B. Aguirre-Hernández, C.A. Loredó-Villalobos, and F.R. García-Sosa*

A proposal of problems about stable Hurwitz polynomials ..... 159

*E.V. Kurmyshev, and L.J. López-Reyes*

Resonance instability of nonlinear vibrations of a string under harmonic heating ..... 165

*Omar Sánchez-Rodríguez, Juan Carlos Chimal-Eguía, and R. Barrón-Fernández*

Nonlinear control applied on PVTOL with restricted Cartesian dynamics ..... 169

*O. Olotu, and E.J. Dansu*

Penalty function method for optimizing constrained proportional control problems ..... 177

REGULAR PAPER

*Vladimir Bondarko*

Zeros of delayed sampled systems ..... 183