

Proposal of an edited volume

Topics in Time Delay Systems
Analysis, Algorithms, and Control

Jean Jacques Loiseau, Wim Michiels,
Silviu-Iulian Niculescu, Rifat Sipahi (Eds.)

January 2009

Contents

Part I Analysis and Methodology

On Moment Stability of Linear Systems with a Stochastic Delay Variation <i>Erik Verriest, Wim Michiels</i>	3
Stability Analysis of Neutral Systems: A Delay-Dependent Criterion <i>Tudor C. Ionescu, Radu Ștefan</i>	15
Frequency Stability Analysis of Linear Systems with General Distributed Delays <i>Vladimir L. Kharitonov, Sabine Mondié, Gilberto Ochoa</i>	25
Robust Control for Multiple Time Delay MIMO Systems with Delay - Decouplability Concept <i>Kamran Turkoglu, Nejat Olgac</i>	37
On Stability of Linear Retarded Distributed Parameter Systems of Parabolic Type <i>Yury Orlov, Emilia Fridman</i>	49
Lyapunov Matrices for Neutral Type Time Delay Systems <i>Gilberto Ochoa, José E. Velazquez, Vladimir L. Kharitonov, Sabine Mondié</i> . . .	61
Stability of Coupled Differential-Difference Equations with Block Diagonal Uncertainty <i>Yi Liu, Hongfei Li, Keqin Gu</i>	73
On Pole Assignment and Stabilizability of Neutral Type Systems <i>Rabah Rabah, Grigory M. Sklyar, Alexander V. Rezounenko</i>	85

Part II Numerical Methods and Algorithms

SOS Methods for Stability Analysis of Neutral Differential Systems <i>Matthew M. Peet, Catherine Bonnet, Hitay Özbay</i>	97
Nonlinear Time-Delay Systems: A Polynomial Approach Using Ore Algebras <i>Miroslav Halás</i>	109
Stable Periodic Solutions of Time Delay Systems Containing Hysteresis Nonlinearities <i>Alexander M. Kamachkin, Alexander V. Stepanov</i>	121
SOS for Nonlinear Delayed Models in Biology and Networking <i>Antonis Papachristodoulou, Matthew M. Peet</i>	133
TRACE-DDE: a Tool for Robust Analysis and Characteristic Equations for Delay Differential Equations <i>Dimitri Breda, Stefano Maset, Rossana Vermiglio</i>	145
Analysis of Numerical Integration for Time Delay Systems <i>Alfredo Bellen, Stefano Maset</i>	157
On Algebraic Simplifications of Linear Functional Systems <i>Thomas Cluzeau, Alban Quadrat</i>	167
OREMORPHISMS: A Homological Algebraic Package for Factoring, Reducing and Decomposing Linear Functional Systems <i>Thomas Cluzeau, Alban Quadrat</i>	179

Part III Controlling and Observing Delay Systems	
---	--

Integral Action Controllers for Systems with Time Delays <i>Hitay Özbay, A. Nazli Gündes</i>	197
Stabilization of Neutral Time-Delay Systems <i>Michaël Di Loreto, Catherine Bonnet, Jean Jacques Loiseau</i>	209
Robust Stabilization and H_∞ Control of Uncertain Distributed Delay Systems <i>Ulrich Münz, Jochen M. Rieber, Frank Allgöwer</i>	221
Observer Design for Systems with Non Small and Unknown Time-Varying Delay <i>Alexandre Seuret, Thierry Floquet, Jean-Pierre Richard, Sarah Spurgeon</i>	233

Input-Output Representation and Identifiability of Delay Parameters for Nonlinear Systems with Multiple Time-Delays <i>Milena Anguelova, Bernt Wennberg</i>	243
Time Optimal and Optimal Impulsive Control for Coupled Differential Difference Point Delay Systems with an Application in Forestry <i>Erik I. Verriest, Pierdomenico Pepe</i>	255
<hr/>	
Part IV Propagation and Flows	
<hr/>	
On the Stability of AQM Controllers Supporting TCP Flows <i>Daniel Melchor-Aguilar</i>	269
A Robust State Feedback Control Law for a Continuous Stirred Tank Reactor with Recycle <i>Pierdomenico Pepe</i>	281
Functional Differential Equations Associated to Propagation <i>Vladimir Răsvan</i>	293
Design, Modelling and Control of the Experimental Heat Transfer Set-Up <i>Tomáš Vyhřídál, Pavel Zítek, Karel Paulů</i>	303
Optimal Identification of Delay-Diffusive Operators and Application to the Acoustic Impedance of Absorbent Materials <i>Céline Casenave, Gérard Montseny</i>	315
<hr/>	
Part V Delays in Interconnected Systems and Networks	
<hr/>	
Controlling Across Complex Networks: Emerging Links Between Networks and Control <i>Aaron Clauset, Herbert G. Tanner, Chaouki T. Abdallah, Raymond H. Byrne</i>	329
Inventory Dynamics Models of Supply Networks with Delays; System-Level Connection & Stability <i>Ismail Ilker Delice, Rifat Sipahi</i>	347
Some Remarks on Delay Effects in Motion Synchronization in Shared Virtual Environments <i>Joono Cheong, Silviu-Iulian Niculescu, Yonghwan Oh, Irinel Constantin Morărescu</i>	359
Control of Teleoperators with Time-Delay: A Lyapunov Approach <i>Emmanuel Nuño, Luis Basañez, Romeo Ortega</i>	371

Synchronization and Amplitude Death in Coupled Limit Cycle Oscillators with Time Delays <i>Fatihcan M. Atay</i>	383
Synchronization of Nonlinear Systems by Bidirectional Coupling with Time-Varying Delay <i>Toshiki Oguchi, Takashi Yamamoto, Henk Nijmeijer</i>	391
Master-Slave Synchronization for Two Inverted Pendulums with Communication Time-Delay <i>Héctor Javier Estrada-García, Luis Alejandro Márquez-Martínez, Claude H. Moog</i>	403
Index	415