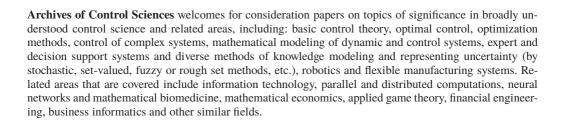
POLISH ACADEMY OF SCIENCES COMMITTEE OF AUTOMATIC CONTROL AND ROBOTICS



VOLUME 29 (LXV), No. 1 QUARTERLY

Institute of Automatic Control Silesian University of Technology Gliwice 2019



All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the copyright owner.

Submission of a paper implies the author's irrevocable and exclusive authorization of the publisher to collect any sums or considerations for copying or reproduction payable by third parties.

Copyright ©Silesian University of Technology, 2019

The publication of this Journal is supported by funds from the Polish Ministry of Science and Higher Education.

Address of the Editor: Institute of Automatic Control, Silesian University of Technology Akademicka 16, 44–100 Gliwice, Poland. Tel: +(48–32) 237–23–98, fax +(48–32) 237–21–27

http://acs.polsl.pl

Typesetting in L^AT_EX: Drukarnia Braci Grodzickich Sp.j. 05-500 Piaseczno, ul. Geodetów 47a

Printing: Gimpo 02-858 Warszawa, ul. Transportowców 11

CONTENTS

D. Krokavec, A. Filasová: A new D-stability area for linear discrete-time systems	5
J. Brodny, M. Tutak: Forecasting the distribution of methane concentration levels in mine headings by means of model-based tests and in-situ measurements	25
A. Abdelhak, M. Rachik: Model reduction problem of linear discrete systems: Admissibles initial states	41
A.Zh. Khurshudyan: Distributed controllability of one-dimensional heat equation in unbounded domains: The Green's function approach	57
VT. Pham, S. Vaidyanathan, C. Volos, S. Jafari, F.E. Alsaadi, F.E. Alsaadi: Chaos in a simple snap system with only one nonlinearity, its adaptive control and real circuit design	73
R. Czyba, L. Stajer: Dynamic Contraction Method approach to digital longitudinal aircraft flight controller design	97
M. Szumowski, M.S. Żurawska, T. Zielińska: Preview Control applied for humanoid robot motion generation	111
N.A. Almohammadi, E.O. Alzahrani, M.M. El-Dessoky: Combined modified function projective synchronization of different systems through adaptive control	133
L. Yulianti, A. Nazra, Zulakmal, A. Bahar, Muhafzan: On discounted LQR control problem for disturbanced singular system	147
T. Kaczorek: Absolute stability of a class of positive nonlinear continuous-time and discrete-time systems	157
I. Ullah, HL. Pei: Sliding mode tracking control for unmanned helicopter using extended disturbance observer	169