CHIEF EDITOR

M. Sambandham (U.S.A)

EDITORIAL BOARD

R. P. Agarwal (U.S.A)
S. Ahmad (U.S.A)
N. U. Ahmed (Canada)
M. P. Bekakos (Greece)
A. Cellina (Italy)
C. Y. Chan (U.S.A)
K. C. Chang (P.R China)
Shui-Nee Chow (U.S.A)
G. Da Prato (Italy)
A. Friedman (U.S.A)
K. Gopalsamy (Australia)
J. R. Graef (U.S.A)
L. Hatvani (Hungary)
D. Kannan (U.S.A)
V. Kolmanovskii (Russia)
G. S. Ladde (U.S.A)
P. L. Lions (France)
N. G. Medhin (U.S.A)
M. Z. Nashed (U.S.A)
D. O'Regan (Ireland)
S. Pederson (USA)
S. Reich (Israel)
C. P. Tsokos (U.S.A)
J. vom Scheidt (BRD)
F. Zanolin (Italy)

Past Honorary Editorial Board

J. K. Hale (U.S.A)
M. A. Krasnosel'skii (Russia)
V. Lakshmikantham (U.S.A)
I. Prigogine (Belgium)
R. Z. Sagdeev (U.S.A)
P. A. Samuelson (U.S.A)

June and September 2013
VOLUME 22, NUMBER 2 & 3
ISSN 1056-2176

DYNAMIC SYSTEMS AND APPLICATIONS

Special Issue:

to Honor

Dr. V. Lakshmikantham (1924 - 2012)

DYNAMIC PUBLISHERS ● USA

Dynamic Systems and Applications

The aim of this quarterly journal is to provide an international forum for the information in the theory and practice of **Dynamic Systems and Applications**. This journal publishes carefully selected original research papers from stochastic/deterministic : Differential Equations, Integral Equations, Integro-Differential Equations, Discrete Analogs of these equations, and Applications.

CHIEF EDITOR

M. SAMBANDHAM, Department of Mathematics, Morehouse College, Atlanta, GA 30314, USA.

EDITORIAL BOARD

R. P. Agarwal, Department of Mathematics, Texas A&M University - Kingsville, Kingsville, TX 78363, USA
S. Ahmad, Department of Mathematics, University of Texas at San Antonio, San Antonio, TX 78249, USA
N.U. Ahmed, Department of Electrical Engineering, University of Ottawa, Ottawa, CANADA
M. P. Bekakos, Dept. Elec. & Comp. Engg., Democritus Univ. of Thrace, Xanthi 67100, Thrace, GREECE
A. Cellina, SISSA, Department of Mathematics, Strada Costiera 11, 34014 TRIESTE, ITALY
C. Y. Chan, Department of Mathematics, University of Louisiana at Lafayette, Lafayette LA 70504, USA,
K. C. Chang, Department of Mathematics, Peking University, Beijing 100871, P.R.CHINA
Shui-Nee Chow, Department of Mathematics, Georgia Institute of Technology, Atlanta, GA 30332, USA
G. Da Prato, Department of Mathematics, Scuola Normale Superiore, 56126 Pisa, ITALY
A. Friedman, Department of Mathematics, The Ohio State University, Columbus, OH 43210-1174 , USA
K. Gopalsamy, School of Information Science, Flinders University, Bedford Park, SA 5042, AUSTRALIA
J. R. Graef, Dept. of Mathematics., University of Tennessee at Chattanooga, Chattanooga, TN 37403, USA.
L. Hatvani, Department of Mathematics, Bolyai Institute, Aradi vértanúk Tere 1, Szeged H-6720, HUNGARY
D. Kannan, Department of Mathematics, University of Georgia, Athens, GA 30602, USA.
V. Kolmanovskii, Cybernetics Department, MIEM, Bolsboy Vuzovsky 3/12, Moscow 109028, USSR
G. S. Ladde, Dept. of Mathematics & Statistics, University of South Florida, Tampa, FL, 33620, USA
P. L. Lions, Univ. de Paris-Dauphine, Ceremade, Place de Lattre de Tassigny 75775, Paris Cedex 16, FRANCE
N. G. Medhin, Department of Mathematics, North Carolina State University, Raleigh, NC 27695
M. Z. Nashed, Department of Mathematics, University of Central Florida, Orlando, FL 32816, USA
Donal O'Regan, Department of Mathematics,University College Galway,Galway, IRELAND
S. Pederson, Department of Mathematics, Morehouse College, Atlanta, GA 30314, USA.
S. Reich, Department of Mathematics, Technion-Israel Institute of Technology, 32000 Haifa, Israel
C. P. Tsokos, Department of Mathematics, University of South Florida, Tampa, FL 33620-5700, USA
J. vom Scheidt, Faculty of Mathematics, Chemnitz University of Technology , 09107 Chemnitz, GERMANY
F. Zanolin, Dipartmento di Mathematica, Universita-via Zanon, 6-33100 Udine, ITALY

PAST HONORARY EDITORIAL BOARD

J. K. Hale, Department of Mathematics, Georgia Institute of Technology, Atlanta, GA 30332, USA
M. A. Krasnosel'skii, Institute for Information, Transmission Problems, 19 Ermolovoy St 101447, Moscow, USSR
V. Lakshmikantham, Dept. of Applied Mathematics, Florida Institute of Technology, Melbourne, FL 32901, USA
I. Prigogine, Code Postal 231-Campus Plaine U.L.B, Boulevard du Triomphe, 1050 Bruxelles, BELGIUM
R. Z. Sagdeev, Department of Physics and Astronomy, University of Maryland, College Park, MD 20742, USA
P.A. Samuelson, Department of Economics, MIT, Cambridge, MA 02139, USA

Dynamic Systems and Applications (ISSN 1056-2176) is published quarterly by Dynamic Publishers, Inc, Atlanta, GA 30362, USA, in the months of March, June, September, and December.

Articles published in **Dynamic Systems and Applications** are indexed or abstracted in: ● Mathematical Reviews ● Current Mathematical Publications ● MathSci ● Zentralblatt für Mathematik/Mathematics Abstracts ● Abstract Journal, USSR Academy of Sciences ● Science Citation Index

Copyright © 2013. No part of **Dynamic Systems and Applications** may be reproduced or transmitted in any form or by any means without written permission from the publisher. **Dynamic Systems and Applications** has been registered with the Copyright Clearance Center (CCC) Transactional Reporting Services. Consent is given for copying of articles for personal or internal use, or for the personal use of specific clients provided that the base fee $15.00 (per copy, per article) is paid directly to CCC, 27 Congress St., Salem, MA 01970 USA. For those organizations that have been granted a photo copy license by CCC, a separate system of payment has been arranged. The fee code for users of the Transactional Reporting Service is 1056-2176/92 $15.00.

Subscription : Vol 22 (2013) Library/Institutional : **US$ 600.00**; Personal : **US$ 250.00**

(All countries except USA add **US$ 80.00** for S/H). Subscription and all other inquires should be addressed to **Dynamic Systems and Applications, Dynamic Publishers, Inc, P. O. Box 48654, Atlanta, GA 30362-0654, USA**. Editorial inquires should be directed to the **Chief Editor**.

POSTMASTER: Send address changes to **Dynamic Systems and Applications,** Dynamic Publishers, Inc, P. O. BOX 48654, Atlanta, GA 30362-0654, USA.

Printed in U.S.A.

Dynamic Systems and Applications

Volume 22, Number 2 & 3, June and September 2013

CONTENTS

Gabriele Bonanno, Petru Jebelean, and C Alin Şerban **183**
Three Solutions for Discrete Anisotropic Periodic and Neumann Problems

Jürgen Appell and Nelson Merentes **197**
Composing Functions of Bounded Korenblum Variation

Seppo Heikkilä and Erik Talvila **207**
Distributions, Their Primitives and Integrals with Applications to Distributional Differential Equations

Donal O'Regan **251**
Topological Principles via a Connectedness and Compactness Argument

Zhi-Han Zhao, Yong-Kui Chang, and Juan J. Nieto **269**
Square-Mean Asymptotically Almost Automorphic Process and Its Application to Stochastic Integro-Differential Equations

M. E. Filippakis, D. O'Regan, and N. S. Papageorgiou **285**
Bifurcation Type Results For Nonlinear Eigenvalue Neumann Problems

Józef Banaś and Monika Krajewska **301**
On Solutions of Semilinear Infinite Systems of Differential Equations

B. Ricceri **317**
A New Existence and Localization Theorem for the Dirichlet Problem

Alexandru Kristály, Gheorghe Moroşanu, and Donal O'Regan **325**
A Dimension-Depending Multiplicity Result for a Perturbed Schrödinger Equation

J. Vasundhara Devi, S. G. Deo, and S. Nagamani **337**
On Fractional Trigonometric Functions and Their Generalizations.

Radu Precup **355**
Critical Point Localization Theorems via Ekeland's Variational Principle

Vicenţiu D. Rădulescu **371**
Combined Effects for a Stationary Problem With Indefinite Nonlinearities and Lack of Compactness

Gabriele Bonanno, Dumitru Motreanu, and Patrick Winkert **385**
Boundary Value Problems with Nonsmooth Potential, Constraints and Parameters

P. Candito, S. Carl, and R. Livrea **397**
Variational Versus Pseudomonotone Operator Approach in Parameter-Dependent Nonlinear Elliptic Problems

(Continued in back cover)

Gabriele Bonanno and Giuseppina D'aguì **411**
Critical Nonlinearities for Elliptic Dirichlet Problems

Simeon Reich and Alexander J. Zaslavski **419**
Convergence of Inexact Iterates of Nonexpansive Mappings in Metric Spaces

F. A. Mcrae, Z. Drici, and J. Vasundhara Devi **425**
Terminal Value Problems for Caputo Fractional Differential Equations

Tadesse Zerihun and G. S. Ladde **433**
Fundamental Properties of Solutions of Non Linear Stochastic Differential Equations and Method of Variation of Parameters

Lina Ma, Jingxiao Zhang, and D. Kannan **459**
Utility Indifference Pricing of Products Integrating Reverse Mortgage with Long-Term Care Insurance Under a Lévy Process Financial Market

Sowmya Muniswamy and Aghalaya S. Vatsala **479**
Superlinear Convergence for Caputo Fractional Differential Equations with Applications