

JOURNAL OF APPLIED ANALYSIS

EDITORS-IN-CHIEF

Włodzimierz Fechner, *Łódź*

Krzysztof Ciesielski, *Morgantown*

MANAGING EDITOR

Lesław Gajek, *Łódź*

EDITORIAL BOARD ASSISTANT

Żywilla Fechner, *Łódź*

EDITORIAL BOARD

Qamrul H. Ansari, *Dhahran*

Jan Awrejcewicz, *Łódź*

Philippe Biane, *Marne-la-Vallée*

Michel Chipot, *Zürich*

Udayan B. Darji, *Louisville*

Silvestru Sever Dragomir, *Melbourne*

Celso Grebogi, *Aberdeen*

Ryszard Jajte, *Łódź*

Alexander Kharazishvili, *Tbilisi*

Sándor Komlósi, *Pécs*

J. Martin Lindsay, *Lancaster*

Andrzej Luczak, *Łódź*

Zhi-Ming Ma, *Beijing*

Janusz Matkowski, *Zielona Góra*

Boris Mordukhovich, *Detroit*

Eszter Novák-Gselmann, *Debrecen*

Andrzej Nowakowski, *Łódź*

Alexander Olevskii, *Tel Aviv*

Simeon Reich, *Haifa*

R. Tyrrell Rockafellar, *Seattle*

Saharon Shelah, *Jerusalem and New Brunswick*

Yoshihiro Shibata, *Tokyo*

Hari M. Srivastava, *Victoria*

Laszlo Szekelyhidi, *Debrecen*

Katarzyna Szymańska-Dębowska, *Łódź*

Lionel Thibault, *Montpellier*

Władysław Wilczyński, *Łódź*

Hong-Kun Xu, *Hangzhou*

Dariusz Zagrodny, *Łódź*

Wojciech Zajączkowski, *Warsaw*

DE GRUYTER

JOURNAL OF APPLIED ANALYSIS is an international journal devoted to applications of mathematical analysis. Among them there are applications to economics (in particular finance and insurance), mathematical physics, mechanics and computer sciences. Topics include applications of mathematical analysis (real and complex, harmonic, convex, variational), differential equations, dynamical systems, optimization (linear, nonlinear, convex, nonsmooth, multicriterial), optimal control, stochastic modeling and probability theory, numerical methods. The journal also welcomes works showing connections between mathematical analysis and other domains of mathematics such as geometry, topology, logic and set theory.

Journal of Applied Analysis is jointly produced by the Institute of Mathematics of the Technical University of Łódź and De Gruyter.

ISSN 1425-6908 · e-ISSN 1869-6082

Please see the journal's homepage for Abstracting & Indexing Services information.

All information regarding notes for contributors, subscriptions, Open access, and orders is available online at www.degruyter.com/jaa.

EDITORIAL OFFICE Journal of Applied Analysis, Institute of Mathematics, Technical University of Łódź, Wólczajska 215, 93-005 Łódź, Poland
e-mail: jaa@info.p.lodz.pl

RESPONSIBLE EDITOR Lesław Gajek, Institute of Mathematics, Technical University of Łódź, Wólczajska 215, 93-005 Łódź, Poland
e-mail: gal@p.lodz.pl

PUBLISHER Walter de Gruyter GmbH, Berlin/Boston, Genthiner Straße 13, 10785 Berlin, Germany

JOURNAL COORDINATOR Natalia Białka, e-mail: natalia.bialka@degruyterbrill.com

© 2025 Walter de Gruyter GmbH, Berlin/Boston

TYPESETTING WisSat Publishing + Consulting GmbH, Fürstenwalde

PRINTING Franz X. Stückle Druck und Verlag e.K., Ettenheim

Questions about General Product Safety Regulation: productsafety@degruyterbrill.com



Contents

Bendehiba Senoussi

Some classification of affine homothetical surfaces of finite type in $\mathbb{I}^3$ — 227

Shailesh Kumar Srivastava, Shivani Luhar, Sachin Devaiya

Degree of approximation of functions conjugate to the functions belonging to $\text{Lip}((\xi_1, \xi_2); r)$ -class through double Nörlund means — 237

Archana Sharma, Reena Kumari, Vijay Kumar

Some aspects of λ -weak convergence using difference operator — 245

Ghizlane Zineddaine, Abdelaziz Sabiry, Said Melliani, Abderrazak Kassidi

Anisotropic obstacle Neumann problems in weighted Sobolev spaces and variable exponent — 255

Calvin Tadmon, Gabriel Deugoué, Salvador Awo Kougang

On the existence, uniqueness and regularity of strong solutions to a stochastic 2D Cahn–Hilliard–Magnetohydrodynamic model — 271

M. M. Praveena, Aruna Kumara H., C. M. Arjun, M. S. Siddesha

Static perfect fluid spacetime on Riemannian manifolds admitting concurrent-recurrent vector field with Bach tensor — 303

Michael Ruzhansky, Alibek Yeskermessuly

Heat equation for Sturm–Liouville operator with singular propagation and potential — 311

Khaled Kefi, Qiguang An, Jian Liu

Analysis of a nonlinear elliptic system with variable coefficients and Hardy potential with Carathéodory nonlinearity: Existence — 329

Jicheng Yu, Yuqiang Feng

Lie symmetries, exact solutions and conservation laws of $(2 + 1)$ -dimensional time fractional cubic Schrödinger equation — 337

Do Huy Hoang, Truong Thi Nhan, Pham Thanh Son, Dao Van Duong, Tran Nhat Luan

On Egorov-like theorems for monotone measure — 349

Achraf Zinihi, Moulay Rchid Sidi Ammi, Ahmed Bachir, Pradip Debnath

Existence of solutions for a q -fractional p -Laplacian SIR model — 367

Fethi Soltani, Ibrahim Maktouf

Uncertainty principles for the Dunkl–Weinstein–Stockwell transform — 375

Awais Rasheed, Khuram Ali Khan, Josip Pečarić, Đilda Pečarić

Estimations of Levinson-type inequalities using novel 3-convex Green functions with Taylor’s formula — 387

Saroj Panigrahi, Raghvendra Kumar

Positive solutions for a class of singular fractional boundary value problem with p -Laplacian — 401

Alexander G. Ramm

Study of nonlinear PDE with power nonlinearities — 419

Henryk Gzyl

A geometry in the set of solutions to ill-posed linear problems with box constraints: Applications to probabilities on discrete sets — 423

Hatem Mejjaoli

Toeplitz operators associated with the Whittaker Gabor transform and applications — 439

