



Applications and Applied Mathematics: An International Journal (AAM)

ISSN: 1932-9466

Editor-in-Chief

[Aliakbar Montazer Haghighi, Ph. D.](#)

Professor and Head of Department of Mathematics
Marvin D. Brailsford and Mrs. June Samuel Brailsford College of Arts and Sciences
Prairie View A&M University
P. O. Box 519 - Mail Stop 2225
Prairie View, Texas 77446-0519 **USA**
Tel: (936) 261-1970, Fax: (936) 261-2088
E-mail: amhaghighi@pvamu.edu
Web: <http://pvamu.edu/pages/385.asp>

Associate Editor: [Dr. Dimitar Mishev](#)

Associate Editor: [Dr. Jian-ao Lian](#)

Assistant Editor: [Dr. Arouna Davies](#)

Department of Mathematics
Prairie View A&M University
dimichev@pvamu.edu; jilian@pvamu.edu; ardavies@pvamu.edu

Founders and Founding Editors-in-Chiefs



Aliakbar Montazer Haghighi, Ph. D.

Professor and Head of Department of Mathematics
Brailsford College of Arts and Sciences
Prairie View A&M University
Prairie View, Texas, **USA**



Marin Stefanov Marinov, Ph. D.

Associate Professor and Former Dean
Faculty of Applied Mathematics and Informatics
Technical University of Sofia
Sofia, **Bulgaria**

AAM Board of Editors with their Expertise

No.	Name		2010 Mathematics Subject Classification http://www.ams.org/mathscinet/msc/msc2010.html	
	First Name, Last Name		Specialty	MSC #
1	<i>S. Abbasbandy</i> Department of Mathematics Imam Khomeini International University Ghazvin, 34149-16818, abbasbandy@yahoo.com ;	IRAN	Error Analysis, Non-Linear Algebraic Equations, Differential Equations, Integrals, Partial Differential Equations	65G, 65H, 65L, 65M, 65N, 65R20
2	<i>Shirley Abelman</i> Centre for Differential Equations, Continuum Mechanics and Applications School of Computational and Applied Mathematics University of the Witwatersrand Johannesburg, Private Bag 3 Wits 2050, Shirley.Abelman@wits.ac.za	SOUTH AFRICA	Numerical Methods	74S
3	<i>Mohammad Ahsanullah</i> Rider University Lawrenceville, NJ, ahsan@rider.edu ;	USA	Characterization of Distributions, Statistical Inferences, Record Values, Ordered random Variable, Operations Research	62E10, 62M 90
4	<i>Haydar Akca</i> United Arab Emirates University Al Ain, hakca@uaeu.ac.ae ;	UAE	Functional Differential Equations	65L03
5	<i>Abbas Younis Al-Bayati</i> Dean, Basic Education College-Telafar Mosul University Mosul, profabbasalbayati@yahoo.com ;	IRAQ	Computer Oriented Algorithms, Numerical Optimization, Numerical Analysis	65Y, 74P, 97N40
6	<i>Bruno Apolloni</i> Universita degli di Milano Milano, apolloni@dsi.unimi.it ;	ITALY	Statistical Bases of Learning	62

7	<p><i>Luiza Badin</i> Bucharest Academy of Economic Studies Bucharest, luizabadin@yahoo.com; luiza.badin@csie.ase.ro;</p>	ROMANIA	Microeconomic, Macroeconomic, Cybernetic Modeling	91b64
8	<p><i>Anjan Biswas</i> Department of Mathematical Sciences Delaware State University 1200 N DuPont Hwy Dover, Delaware 19901-2277 biswas.anjan@gmail.com</p>	USA	Optical Solitons, Nonlinear Optics, Plasma Physics, Fluid Dynamics, Theoretical Physics	58D30, 82D10, 98A60
9	<p><i>Igor A. Bolotnov</i> Assistant Professor, Nuclear Engineering, North Carolina State University, Raleigh, NC, igor.bolotnov@gmail.com; igor_bolotnov@ncsu.edu</p>	USA	Engineering Physics, Cascade Modeling of Single and Two Phase Turbulance	76F55
10	<p><i>Arup Kumar Borah</i> Department of Mathematical Sciences R.G. Baruah College Fatasil, Ambari, Guwahati-781025, Borah.arup@yahoo.com;</p>	INDIA	Numerical Fluid Dynamics, Numerical Analysis, Simulations	37M05, 97N40
11	<p><i>Abdellatif Bourhim</i> Department of Mathematics Syracuse University 215 Carnegie Building Syracuse, NY 13244 abourhim@syr.edu;</p>	USA	Linear Algebra, Banach Algebra, Functional Analysis, Functional Thoery, Statistics and Probability	05C50/15A, 32A65, 46, 62
12	<p><i>Snehashish Chakraverty</i> Department of Mathematics National Institute of Technology Rourkela - 769 008 Orissa, sne_chak@yahoo.com; chakravertys@nitrrkl.ac.in; snechak@gmail.com</p>	INDIA	Fuzzy Differential Equations Neural Nets and Applications Numerical Analysis Vibrations Artificial Intelligence	34A07, 35R13 62M45 65 74H45 97R40
13	<p><i>Paul Chiou</i> Department of Mathematics Lamar University 200 Lucas Building P.O. Box 10047 Beaumont, Texas 77710 Paul.chiou@lamar.edu;</p>	USA	Bayesian Statistics, Conditional Estimation, Empirical Bayes, Reliability, Shrinkage Estimation, Receptor Modeling in Air Pollution	65C60

14	<p><i>Stefanka S. Chukova</i> Victoria University of Wellington School of Mathematics, Statistics & Operations Wellington, schukova@mcs.vuw.ac.nz;</p> <p style="text-align: right;">NEW ZEALAND</p>	<p>Information Asymmetry, Data Mining, Mathematical Models, Warranty Analysis, Reliability, Availability, Maintenance, Stochastic Models</p>	<p>60K10, 90B25, 91B70, 93A30, 97M</p>
15	<p><i>Orion Ciftja</i> Prairie View A&M University Prairie View, TX 77446 ogciftja@pvamu.edu;</p> <p style="text-align: right;">USA</p>	<p>Special Functions, Statistical Mechanics, Structure of Matter, Quantum Theory</p>	<p>33, 81, 82</p>
16	<p><i>Mathieu Colin</i> Mathematics Appliquees de Bordeaux Universite Bordeaux 1 351 cours de la Liberation 33405 Talence Cedex, Mathieu.Colin@math.u-bordeaux1.fr;</p> <p style="text-align: right;">FRANCE</p>	<p>Analyses of Nonlinear PDE</p>	<p>32W50, 34B07</p>
17	<p><i>Subir Das</i> Department of Applied Mathematics Institute of Technology Banaras Hindu University Varanasi -221005, subir_das08@hotmail.com</p> <p style="text-align: right;">INDIA</p>	<p>Fracture Mechanics, Mathematical Modelling, Fractional Calculus, Nonlinear Dynamics</p>	<p>44, 70k</p>
18	<p><i>Lokenath Debnath</i> Department of Mathematics The University of Texas-Pan American 1201 W. University Drive Edinburg, TX 78539-2999 debnathl@utpa.edu</p> <p style="text-align: right;">USA</p>	<p>Partial Differential Equations</p>	<p>35</p>
19	<p><i>Hoshiyar Dhami</i> Professor and Head of the Department of Mathematics Coordinator CEMS Kumaun University SSJ campus Almora, Hoshivar.dhami@kuntl.in</p> <p style="text-align: right;">INDIA</p>	<p>Theory of Special Functions and Connected Integral Transforms</p>	<p>33, 65R10</p>
20	<p><i>Mohamed O. El-Doma</i> University of Khartoum Khartoum, biomath2004@yahoo.com;</p> <p style="text-align: right;">SUDAN</p>	<p>Population Dynamics Epidemiology</p>	<p>92D25, 92D30</p>

21	<p><i>ILia B. Frenkel</i> Center for Reliability and Risk Management Industrial Engineering and Management Department Sami Shamoon College of Engineering Bialik/Basel Sts. Beer Sheva 84100 iliaf@sce.ac.il</p>	ISRAEL	<p>Markov Processes, Reliability & Life Testing, Reliability, Availability, Maintenance and Inspection</p>	60J, 62N05, 90B25
22	<p><i>George W. Grossman</i> Department of Mathematics Central Michigan University Mount Pleasant, MI 48859 grosslgw@cmich.edu; george.william.grossman@cmich.edu</p>	USA	<p>Algebra, Number Theory, Numerical Analysis, Fluid Dynamics</p>	11, 58, 65
23	<p><i>Gholamhossein G. Hamedani</i> Department of Mathematics, Statistics and Computer Science Marquette University Katharine Reed Cudahy Hall Milwaukee, WI 53201-1881 e-mail: g.hamedani@mu.edu</p>	USA	<p>Probability, Statistics</p>	62E10, 62M 90
24	<p><i>Huiguang He</i> Chinese Academy of Sciences Beijing, huiguang.he@ia.ac.cn;</p>	CHINA	<p>Sampling Theory, Monet Carlo Methods, Parameter Inference, Survival Analysis</p>	62C05, 62F, 62N, 65D05
25	<p><i>Md. Anwar Hossain</i> Department of Mathematics University of Dhaka Dhaka, anwar.cfd@gmail.com, dranwardu@yahoo.com</p>	BANGLADESH	<p>Fluid Mechanics, Heat and Mass Transfer</p>	97K80
26	<p><i>Natalia Hritonenko</i> Prairie View A&M University Prairie View, Texas, Nahritonenko@pvamu.edu;</p>	USA	<p>Optimality, Population Dynamics, Environmental Economics, Dynamic Economic Models, Growth Models</p>	37N, 49K, 91B62, 91B76 , 92D25
27	<p><i>Anuar Ishak</i> School of Mathematical Sciences Universiti Kebangsaan Malaysia 43600 UKM Bangi Selangor anuarishak@yahoo.com; anuar_mi@ukm.my</p>	MALAYSIA	<p>Boundary-Layer Theory, Separation and Reattachment, Higher-order Effects, Heat & Mass Transfer, Heat Flow</p>	76W05, 76D10, 76N20, 80A20

28	<i>P. Jordanova</i> Faculty of Mathematics and Informatics Shoumen University Shoumen, pavlina.kj@abv.bg	BULGARIA	Theory of Probability and Stochastic Processes, Extreme Value Theory, Limit Theorems, Queuing Theory	60, 60f, 60G70, 60K25
29	<i>Palle Jorgensen</i> The University of Iowa Iowa City, Iowa Jorgen@math.uniwa.edu ;	USA	Risk Theory, Mathematical & Applied Statistic	91B30, 97k80
30	<i>Shyam L. Kalla</i> Institute of Mathematics Jodhpur, shyamkalla@yahoo.com ;	INDIA	Integral Transform, Fractional Calculus, Probability Distribution, Integral Equations	33, 35, 44, 45
31	<i>Ali K. Kamrani</i> Design and Free Form Fabrication Laboratory Industrial Engineering Department University of Houston Houston, TX 77204-4008 Ali.Kamrani@mail.uh.edu	USA	Geometric Modeling, Modularity and Mass Customization, Complexity Analysis, Rapid Prototyping & Manufacturing, Autonomous Robotics and Control	08B10, 19L64, 68T40
32	<i>Mridula Kanoria</i> Department of Applied Mathematics University of Calcutta k_mri@yahoo.com ;	INDIA	Solid Mechanics, Fluid Mechanics, Mathematical Computational Techniques	76, 76A
33	<i>Lyudmil I. Karandzhulov</i> Technical University Sofia, likar@tu-sofia.bg ;	BULGARIA	Linear Boundary Value Equations, Ordinary Differential Equations	47A56
34	<i>Hristo V. Kojouharov</i> The University of Texas at Arlington Arlington, Texas, hristo@uta.edu ;	USA	Numerical Analysis	97N40
35	<i>Xiaodi Li</i> School of Mathematical Sciences Shandong Normal University ji'nan, 250014, Shandong, P. R. Email: sodymath@163.com ; http://xiaodili.ucoz.com/index.htm	CHINA	Nonlinear Differential Equations	34L30

36	<i>Jian-ao Lian</i> Prairie View A&M University Prairie View, Texas 77446 jlilian@pvamu.edu ;	USA	Armllets and Balanced Multiwavelets	42C40
37	<i>Wen-yan Liang</i> Smart Structures and Advanced Composites Laboratory College of Aerospace and Civil Engineering Harbin Engineering University Harbin 150001, P. R. liangwenyan@hrbeu.edu.cn	CHINA	Viscosity, Dynamic Propagation, Elastic-viscoplastic Materials	74A45
38	<i>Shijun Liao</i> School of Naval Architecture Ocean and Civil Engineering Shanghi Jiao Tong University 800 Dongchuan Road Shanghai, sjliao@sjtu.edu.cn ;	CHINA	Nonlinear ODEs and PDEs, Homotopy Method, Water Waves, Boundary Layer Flows	14F35
39	<i>Ing. Verdiana Grace Masanja</i> National University of Rwanda Butare, Huye, vmasanja@gmail.com	RWANDA	Fluid Mechanics, Partial Diff. Equations, BVP for Elliptic and Parabolic Systems, Mathematics Education Mathematical Modeling	76A, D, W 35J56- 58 35K51, 52 35Q62, 68, 35Q 90-94 97A, 97B
40	<i>Toufik Mansour</i> Department of Mathematics University of Haifa 31905 Haifa, toufik@math.haifa.ac.il ; tmansur11@hotmail.com ;	ISRAEL	Discrete Mathematics, Kernel Method	30C40, 30G25
41	<i>Amit Medhavi</i> Department of Mechanical Engineering Kamla Nehru Institute of Technology Sultanpur-228118, amitmedhavi@yahoo.co.in ;	INDIA	Fluid Mechanics: Stenosis, Peristalsis and Suspension Flow	62P30
42	<i>Kh. S. Mekheimer</i> Mathematics Department Faculty of Science Al-Azhar University Nasr City (11884) Cairo, kh_mekheimer@yahoo.com	EGYPT	Magnetohydrodynamics, Electrohydrodynamics, Physiological Flow, Numerical Methods, Physiological Flows, Electromagnetic and Thermal Effects	74f05, 74f15, 76D, 76M 76S, 76W, 76z05, 92c35

43	Mohammad-Reza Meshkani Department of Statistics Shahid Beheshti University Evin, Tehran, 19838 mrmeshkani@gmail.com	IRAN	Statistics, Parametric Inference, Linear Inference, Regression	62A01, 62F, 62J, 62P
44	Dimitar P. Michev (Mishev) Prairie View A&M University Prairie View, Texas dimichev@pvamu.edu ;	USA	Ordinary Differential Equations, Partial Differential Equations, Differential Equations with Delay	34, 35, 60K25
45	Jordan Michev Suffolk County Community College-Ammerman Campus Selden, New York 11784 michevi@sunysuffolk.edu ;	USA	Mathematics Physics, Completely, Integral Systems	35q51, 35q53, 35q58, 37k
46	O. D. Miranda Divisão de Astrofísica Instituto Nacional de Pesquisas Espaciais Avenida dos Astronautas 1758 São José dos Campos 12227-010 SP, oswaldo@das.inpe.br ;	BRAZIL	Algebraically Special Solutions, Metrics with Symmetries, Approximation Procedures, Weak Fields, Groups of Motions, Cosmology	83C05, 83C10 83C20, 83C15 83C22, 83C35 83C25, 83C40 83C60, 83D05 83F05
47	Vashnu Narayan Mishra Sardar Vallabhbhai National Institute of Technology Ichchhanath Mahadev Rd. Surat, Surat (Gujarat), Vishnu_narayanmishra@yahoo.com ; vishnunarayanmishra@gmail.com ; http://www.svnit.ac.in/dept/amhd/index.php	INDIA	Approximation Theory	41A
48	Syed Tauseef Mohyud-Din HITEC University Taxila Cantt, syedtauseefs@hotmail.com ; syedtauseefs@gmail.com ; syedtauseefs@hitecuni.edu.pk http://www.stmohyuddin.com	PAKISTAN	Simulation and Numerical Modeling	81T80
49	Muhammad Aslam Noor Mathematics, COMSTAT Institute of Information Technology Islamabad, noormaslan@hotmail.com ; aslamnoor@comsats.edu.pk ;	PAKISTAN	Variational Inequalities	49J40

50	<p>Govind Pathek Department of Mathematics Gov. P.G. College, Iansowne Jaiharikhal, Pauri Garhwal -246139 Uttarakhand pathakgovind@rediffmail.com</p>	INDIA	<p>Free convection; Porous medium; Boundary layer flow; Radiation; Skin friction coefficient; Oscillating plate</p>	<p>76D10, 76R10, 76S05</p>
51	<p>Ketty Peevaz Technical University of Sofia Sofia, kgp@tu-sofia.bg;</p>	BULGARIA	<p>Fuzzy sets, Fuzzy Relational Equations</p>	<p>03E72</p>
52	<p>Luís Nobre Pereira University of the Algarve Center for Spatial and Organizational Dynamics ESGHT, Campus da Penha 8005-139 Faro, E-mail: Lmper@ualg.pt</p>	PORTUGAL	<p>Small Area Estimation, Resampling Methods, Model Selection, Market Research</p>	<p>62F40, 91B40, 97N20</p>
53	<p>Ines Ma del Puerto Department of Mathematics University of Extremadura Avda. de Elvas, s/n 06006 Badajoz, idelpuerto@unex.es;</p>	SPAIN	<p>Branching Processes</p>	<p>60J80, 62M05</p>
54	<p>Jianbin Qiu Space Control and Inertial Technology Research Center School of Astronautics, Harbin Institute of Technology P. O. Box 3015, Yikuang Street 2# Nangang District, Harbin 150080 jbqiu@hit.edu.cn</p>	CHINA	<p>Nonlinear Systems Fuzzy Systems Discrete Time</p>	<p>34A34, 93C42, 60J05</p>
55	<p>Daniel N. Riahi Department of Mathematics The University of Texas-Pan American 1201 W. University Drive Edinburg, TX 78539-2999 driahi@utpa.edu;</p>	USA	<p>Applied Mathematics, Applied Mechanics, Engineering Mathematics, Computational Mathematics, Fluid Mechanics</p>	<p>76E, 76E06, 76R, 76Z</p>
56	<p>Vivien Rossi CIRAD - UMR "Ecologie des Forêts de Guyane" Campus Agronomique, BP 701 97387 Kourou Cedex, vivien.rossi@cirad.fr</p>	FRENCH GUIGNA	<p>Aggregation Theory, Bayesian Models</p>	<p>03C68, 03C30, 62C10</p>

57	<i>Hari M. Srivastava</i> Department of Mathematics and Statistics University of Victoria Victoria, British Columbia V8W 3R4 harimsri@math.uvic.ca	CANADA	Real and Complex Analysis, Fractional Calculus, Integral Equations and Transforms, q -Series and q -Polynomials, Analytic Number Theory	22E30, 31A10, 32K, 44A, 65H
58	<i>Tanuja Srivastava</i> Department of Mathematics Indian Institute of Technology Roorkee - 247667, tanujfma@iitr.ernet.in ; tanujfma@yahoo.com	INDIA	Discrete tomography; Image Processing, Reconstruction from Projections; Binary Images.	15A36, 44A12, 68U10, 94A08
59	<i>V.P. Srivastava</i> Krishna Girls Engineering College Mandhana, Kanpur-209217 vijai_sri_vastava@yahoo.co.in	INDIA	Biomechanics- Stenosis, Peristalsis and Suspension Flow	00A69
60	<i>Martin Tanco</i> Universidad de Montevideo Montevideo, Email: mtanco@um.edu.uy ;	URUGUAY	Design of Experiments, Algorithms, Operations Research	11K55, 62J10, 62K05, 62K15, 62K20 62K99, 90B06
61	<i>Hui-Chin Tang</i> National Kaohsiung University of Applied Sciences (R.O.C.) tang@cc.kuas.edu.tw ;	TAIWAN	Random Number Generation, Fuzzy Set Theory, Approximation Methods and Neuristics	03E72, 65C10, 90C59
62	<i>Michail D. Todorov</i> Technical University Sofia, mtod@tu-sofia.bg ;	BULGARIA	Bifurcation Problems, Partial Differential Equations, Incompressible in Viscid Fluids, Computational Methods, Mathematical Biology in General	35Q, 37K50, 65M, 65Z05, 76B, 83-08, 92B99
63	<i>Anna Tomova</i> Dept of Mathematics and Informatics Naval Academy Varna, Bulgariam, Anna_bg_2000@yahoo.com ;	BULGARIA	Set Theory	03C55
64	<i>Vladimir D. Tonchev</i> Michigan Technological University Houghton, Michigan, tonchev@mtu.edu ;	USA	Combinatorics, Coding Theory, Computer Algebra	05B, 05C25, 05E25, 05E30, 51E, 94B

65	<p>Meisong Tong School of Electronics and Information engineering Tongji University 4800 Cao'an Road Shanghai 201804, mtong@tongji.edu.cn</p>	CHINA	Electrical Engineering, Electromagnetics, Numerical Techniques, RF/microwave Circuits and Systems	47N70, 49M, 74F15,
66	<p>Cemil Tunç Yüzüncü Yil University Van- cemtunc@yahoo.com; tuncemil@gmail.com;</p>	TURKEY	Differential Equations	12H20
67	<p>Stefan Ulrych Wehrenbachhalde 35 CH-8053 Zürich, stefan.ulrych@bluewin.ch;</p>	SWITZERLAND	Klein Gordon Equation	30F50
68	<p>Bogdan Vernescu Department Head, Mathematical Science Department Worcester Polytechnic Institute Worcester, Massachusetts vernescu@wpi.edu</p>	USA	Homogenization; Variational Calculus; Flow Through Porous Media	11J04, 26A45
69	<p>Hafiz Abdul Wajid COMSATS Institute of Information Technology habdulwajid@hotmail.com</p>	PAKISTAN	Finite Mathematics Computational Wave Propagation Numerical Methods Finite Element Spectral Element	03C13, 11Y, 30C30, 35P, 65L60
70	<p>Gui-quiong Xu Department of Information Management College of International Business and Management Shanghai University Shanghai 201800, xuqq@staff.shu.edu.cn; xuguigiong@yahoo.com;</p>	CHINA	Nonlinear Evolution Equations, Integrable Systems	35C08, 35P51, 35Q41, 35Q55, 35Q56, 37K10, 68W30
71	<p>Jun Yang Academy of Mathematics and Systems Science Chinese Academy of Sciences School of Reliability and Systems Engineering Beihang University Chinese Academy of Beijing, 100191, tomyj2001@buaa.edu.cn; yangjun@amss.ac.cn yangjun@amss.ac.cn;</p>	CHINA	Mathematical Modeling, Optimization, Biology, Mathematical Economic	34, 37N40 45, 46N10 47N10, 49, 90

72	<i>Chi-Tsuen Yeh</i> Department of Applied Mathematics, National University of Tainan, 33, Sec. 2, Shu-Lin St. 70005 Tainan, Email: ctyeh@mail.nutn.edu.tw ;	TAIWAN	Fuzzy Set Theory Fuzzy Mathematics Fuzzy Regression Analysis	03E72
73	<i>Ahmet Yildirim</i> Department of Mathematics Faculty of Science Ege University 35100 Bornova İzmir, ahmet.yildirim@ege.edu.tr ;	TURKEY	Nonlinear Equations and Systems, Nonlinear Boundary Value Problems, Explicit Solutions and Reductions, Analytical Theory: Traveling Wave Solutions	34A34, 34B15, 34K10, 34A05, 35A24, 35A25, 35C05, 35C07
74	<i>Norio Yoshida</i> Dept of Mathematics University of Toyama Gofuku 3190 Toyama 930-8555 yoshidano1jp@yahoo.co.jp	JAPAN	Oscillation, Zeros of Solutions,	35B05
75	<i>V. A. Yurko</i> Department of Mathematics Saratov State University Astrakhanskaya 83 Saratov 410026, yurkova@info.sgu.ru ;	RUSSIA	Inverse Theory, Inverse Problems, Differential Equations	05B10, 15A29
76	<i>Liancun Zheng</i> School of Mathematics and Physics University of Science and Technology Beijing, liancunzheng@sina.com ; liancunzheng@gmail.com	CHINA	Diffusion and Convection	76R
77	<i>Changrong. R. Zhu</i> Ryerson University Toronto, Ontario, M5B 2K3, changrongzhu97@gmail.com ;	CANADA	Dynamical System	11S82