

Report of the journal Proceedings of the Institute of Mathematics and Mechanics, NASA for 2022

During the reporting period, it was issued the 1st and the 2nd numbers of volume 48 of the journal Proceedings of the Institute of Mathematics and Mechanics of National Academy of Sciences of Azerbaijan. The first issue contains 14 and the second issue contains 12 articles by authors from Azerbaijan, Turkey, Egypt, Morocco, Brazil, Tunis, South Africa and Saudi Arabia.

The first number of volume 48 includes the following articles:

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<u>Symmetry solutions and conserved vectors for a generalized short pulse equation</u>	20 – 39
by Chaudry Masood Khaliq and Anila Mehmood	
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<u>Infimal Convolution and Duality in Convex Mathematical Programming</u>	50 – 62
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by Eminaga M. Mamedov	
<u>To the inverse spectral problem for a perturbed oscillator on the semiaxis</u>	104 – 112
by Agil Kh. Khanmamedov and Mammad F. Muradov	
<u>On some asymptotically half-linear eigenvalue problem for ordinary differential equations of fourth order</u>	113 – 122
by Masuma M. Mammadova	
<u>Boundedness of the Discrete Ahlfors-Beurling Transform on discrete Morrey spaces</u>	123 – 131
by Rashid A. Aliev, Aynur N. Ahmadova and Aynur F. Huseynli	
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by Mustapha Raïssouli and Mohamed Chergui	
<u>A formula for the approximation of functions by single hidden layer neural networks with weights from two straight lines</u>	140 – 149
by Vugar E. Ismailov	
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The 2nd number of volume 48 includes the following articles:

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<u>Non-coercive solvability of some boundary value problems for second order elliptic differential-operator equations with quadratic complex parameter</u> by Bahram A. Aliev, Vugar Z. Kerimov and Yakov S. Yakubov	190 – 205
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<u>Uncertainty inequalities for a family of weighted Dirichlet spaces</u> by Fethi Soltani	214 – 223
<u>\mathbb{K}-Almost Newton-Einstein solitons on Hypersurfaces in generalized Sasakian space forms</u> by Mohd. Danish Siddiqi, Antonio Wilson Cunha and Shah Alam Siddiqui	224 – 237
<u>Optimal control problem with coefficients for the equation of vibrations of a thin plate with discontinuous solution</u> by Hamlet F. Guliyev and Khayala I. Seyfullayeva	238 – 248
<u>On a solution to a nonlocal inverse coefficient problem using feed-forward neural networks</u> by Refet Polat	249 – 258
<u>On Some Tsallis relative operator entropy properties related to Hellinger metrics</u> by Abdenbi El Hilali, Mohamed Chergui and Bouazza El Wahbi	259 – 273
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<u>On the transformation operator for the Schrödinger equation with an additional increasing potential</u> by Davud H. Orujov	311 – 322

In addition, a special issue of the 48th volume of the journal was published on the topic "New Developments of Computational and Analytical Methods in Science and Engineering".

The following scientific articles are published in this issue:

<u>Regularization for two inverse problems for conformable heat equation in L^s spaces</u>	3 – 23
by Kim Van Ho Thi	
<u>Mild Solutions to a Time-Fractional Diffusion Equation with a Hyper-Bessel Operator have a Continuous Dependence with Regard to Fractional Derivative Orders</u>	24 – 38
by Ho Duy Binh and Vo Viet Tri	
<u>Numerical solution of singular stochastic integral equations of Abel's type using operational matrix method</u>	39 – 55
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<u>Modified Atangana-Baleanu fractional differential operators</u>	56 – 67
by Rabha W. Ibrahim and Dumitru Baleanu	
<u>Nonlinear Fractional Order Neutral-type Stochastic Integro-differential System with Rosenblatt Process - A Controllability Exploration</u>	68 – 83
by N. Hakkar, M. Lavanya, A. Debbouche and B.S. Vadivoo	
<u>Mathematical analysis and simulation of a giving up smoking model within the scope of non-singular derivative</u>	84 – 99
by Sumeyra Ucar, Firat Evirgen, Necati Ozdemir and Zakia Hammouch	
<u>A study of the Hepatitis B virus infection using Hilfer fractional derivative</u>	100 – 117
by Shyamsunder, Sanjay Bhattar, Kamlesh Jangid and Sunil Dutt Purohit	
<u>On fractal patterns for multi-wing hyperchaotic attractors with a mirror symmetrical structure</u>	118 – 130
by Emile F. DOUNGMO GOUFO	
<u>An efficient numerical method based on cubic B-Spline for time dependent problem with small parameter</u>	131 – 152
by Kelthoum Lina Redouane, Nouria Arar and Qasem Al-Mdallal	
<u>On Legendre wavelets for Poisson equation in the frame of complex solution</u>	153 – 167
by Nacereddine Kerrouche and Abdelouahab Kadem	
<u>Analytical solution of generalized diffusion-like equation of fractional order</u>	168 – 177
by Rachana Shokhanda, Pranay Goswami and Juan E. Napoles Valdes	
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by Amit Prakash and Rahul	
<u>Mandelbrot Fractals using Fixed-Point Technique of Sine Function</u>	194 – 214
by Anita Tomar, Swati Antal, Darshana J. Prajapati and Parveen Agarwal	