

*Scientific Research Centre
"MachineStructure"*

Amazon Kindle Direct Publishing



ISSN 2572-4347

Journal of Advanced Research in Natural Science

Issue 21

Seattle, USA, 2024

Journal of Advanced Research in Natural Science. –
Seattle, USA: SRC MS, AmazonKDP. – 2024. – Issue 21. – 48 p.

ISSN 2572-4347

Themes of journal:

1. *Mathematics, mechanics, computer science:* Mathematical modeling, numerical methods and software packages; Theoretical mechanics, dynamics of machines; Mechanics of deformable solids; Mechanics of liquid and gas; Biomechanics, bioengineering and biotechnology; Artificial intelligence and machine learning.

2. *Materials science, physics, chemistry:* Theoretical and experimental physics; Space physics, astronomy; Condensed matter physics; Materials Science; Physical Chemistry; Biophysics.

3. *Earth sciences:* Atmosphere and climate; Ecology; Soil science; Biological resources; Agronomy, Forestry and water management; Agroengineering and food technologies; Geophysics; Geodesy; Geology, prospecting and exploration of mineral deposits; Geomechanics and rock destruction.

Editor in Chief:

Ivan A. Zhukov – Empress Catherine II Saint-Petersburg mining university. Department of mechanical engineering

Editorial Board:

Artush A. Ghukasyan – Institute of Mechanics of National Academy of Science of Republic of Armenia

Sergey P. Isaev – Pacific national university. Department of technology of forest management and landscape construction

Petr M. Mazurkin – Volga State University of Technology, Department of Environmental Management

Vladislav G. Malinin – Orel state agrarian university. Department of Technosphere safety

Lyudmila A. Ryabicheva – Vladimir Dahl Lugansk State University. Department of Materials Sciences

Anarkul E. Sadieva – Kyrgyz State Technical University. Department of Machines and devices of food production

Valery V. Alisin – Mechanical Engineering Research Institute of the Russian Academy of Sciences. Laboratory of physical methods of hardening friction surfaces

Yulia V. Zakharova – Bauman Moscow state technical university, Department of computational mathematics and mathematical physics

Copyright © 2024 Authors, SRC MS
All rights reserved.

CONTENTS

Mathematics, mechanics, computer science

- Ghukasyan A.A.** About Hook's law 4
- Novozhenin A.Yu.** Analysis of the load distribution over the surfaces of the multiplier gears by the finite element method..... 14

Materials science, physics, chemistry

- Okunev V.S.** On the same flow of time on Earth and on the Sun 18
- Roshchin M.N.** The effect of the load on the coefficient of friction of the carbon fiber material at high temperature 23
- Roshchin M.N.** Dependence of the coefficient of friction of the fluoroplast on the load during lubrication with hydraulic fluid..... 26
- Biryukov V.P., Yakubovsky A.A.** The influence of hardness on abrasive wear of polyurethane 29
- Biryukov V.P., Goryunov Ya.A.** Influence of caprolon composition on resistance to abrasive wear by fixed abrasive grain 33

Earth sciences

- Gulueva L.R.** Mechanization of adjustment work..... 37
- Buzylev A.V.** Changes in the soil-boniter index and agrophysical properties of urbanized soils of agroecosystems as a result of flattening with turmushezem 40
- Andruschuk N.A., Shabanov V.B., Gvozd V.K.** Ecological assessment of the turf of the seeded lawn when using granular fertilizer and perlite 44

Scientific periodical issue

ISSN 2572-4347

Journal of Advanced Research in Natural Science

Issue 21

Founder: Elena V. Zhukova.

Editorial: Scientific Research Centre «MachineStructure».

Editor in chief: Ivan A. Zhukov.

Printed by AmazonKDP, Seattle WA.

Publication Date: 31.10.2024.

Title ID: 24-22.

Trim Size: 7" x 10" (17.78 x 25.4 cm).

Electronic version is available on the website:

<http://srcms.ru/jarins.html>

Seattle, USA:

Scientific Research Centre «MachineStructure», Amazon Kindle Direct Publishing
2024