

Mechanical Engineering

Sharif

1

**Spring
2025**

Editor-in-Chief: Mehrdad Taghizadeh Manzari

This Journal is published under the auspices of Sharif University of technology, Office of the Vice-Chancellor-in-Charge of Research.

The Journal is published semiannually in Farsi language, aims at establishing a relationship between scientists active in different branches of science and technology and, in particular, at providing a forum for exchange of knowledge between scientists and technologists related to scientific problems prevailing in contemporary society. The journal also strives to present practical and theoretical analyses of these issues and facilitates the circulation of modern scientific findings by scientists and researchers for practical application. In addition, ``**Sharif**'' publishes original papers focusing on issues of specific concern to universities, including research, technological advancements, and topics related to matters of higher education.

P.O.BOX 11155-8639 AZADI AVENUE, TEHRAN, I.R. IRAN

Phone: (98-21) 66005419 - 66164093 Fax: (98-21) 66012983

Web: <http://journal.sharif.ir/>

<http://www.globalsciencejournals.com>

E-mail: pajouhesh@sharif.edu

CONTENTS

- 1 Design, Manufacturing and Testing of a Cylindrical Vibrating Gyroscope**
Seyed Mahmoud Ghalehbandi, Saleh Fallah, Iman Halimi and Hamid Shafiee Alavije
- 13 A Novel Analytical-Statistical-Numerical Framework for Investigating the Thermo-Hydro-Mechanical Behavior of Heterogeneous Subsidence Phenomena, Moisture and Temperature Variations in Cracked Soils Under Soil-Atmosphere Interaction**
Milad Jabbarzadeh and Hamed Sadeghi
- 29 Design and Replacement of a Three-Stage Axial Compressor with a Centrifugal Compressor in a Gas Turbine to Enhance Performance**
MohammadReza Khajekoolaki and Ali Hajilouy
- 43 Numerical Investigating the Effect of the Nozzle on the Uniformity of the Refrigerant Distribution of the Evaporator Distributor**
Mohammad Salehi and Miralam Mahdi
- 55 Energy Harvesting from a Semi-Active Flapping Hydrofoil with Prescribed Pitch Profile**
Abbas Ebrahimi, Majid Hajipour and Mohsen Salehi
- 69 Characterization of the Linear Viscoelastic Properties of Materials by the Results of Nanoindentation Test**
Hossein Salami and Taha Goudarzi
- 83 Dynamic Modeling of the Limb and the Passive Vibration Absorber System with the Aim of Suppressing the Rest Tremor of the Hand**
M. Mohammad-Reza Ommatmohammadi, Mohammad-Reza Sayyed Noorani and Seyed Morteza Sadeghi
- 99 Investigation of the Microstructure and Microhardness of Inconel 792 Superalloy After Laser Shock Peening**
Mahdieh Khosravi Khezri, Seyed Yousef Ahmadi Brooghani, Yadollah Yaghoubinezhad and Mohammad Khanzadeh

RESEARCH NOTES:

- 111 Analytical Model to Determine Thermal Conductivity Coefficient in Honeycomb Structure with Heat Flux Distribution Outside the Central Cylindrical Axis**
Maryam Karimi
- 125 Numerical Study of the Effect of the Co-Flow Jet on the Aerodynamic Coefficients of a Kilowatt Horizontal Axis Wind Turbine Blade**
Fateme Masoudi and Saeed Karimian Aliabadi

APPENDIX

- 137 TOTAL PAGE NUMBER**