

Mechanical Engineering

Sharif

2

Fall
2023

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](http://www.globalsciencejournals.com)

E-mail: pajouhesh@sharif.edu

CONTENTS

- 3 **INVESTIGATION OF THE EFFECT OF SHAPE MEMORY ALLOY ON BUCKLING AND POST-BUCKLING OF COMPOSITE PANELS IN SUPERSONIC FLOW WITH THERMAL HEATING**
Z. Zabihi, M. Dardel and A.R. Fathi
- 13 **DESIGN AND COMPARISON OF COMBINED, PARABOLIC, AND FLAT PLATE REFLECTORS ON THE PERFORMANCE OF A SOLAR MODULE**
M. Asvad, M. Gorji and A. Mahdavi
- 25 **THE SMART DESIGN OF HEAT EXCHANGERS WITH EXPANDED SURFACES BY GENETIC ALGORITHM AND IMAGE PROCESSING**
B. Abolpour, R. Hekmatkhah and A.B. Ansari
- 37 **EXPERIMENTAL STUDY OF MULTI-POINT INCREMENTAL FORMING FOR CONICAL PARTS**
S. Faraji, Y. Rostamian and A.A. Shamsi-Sarband
- 45 **ROTOR DESIGN AND PERFORMANCE STUDY OF AN AIRBORNE WIND ENERGY SYSTEM WITH FLIGHT DYNAMICS SIMULATOR**
M. Ahmadi and S. Karimian Aliabadi
- 57 **LOCALIZATION AND CONTROL OF AN ENDOSCOPIC CAPSULE USING STOKES FLOW EQUATIONS**
P. Sadeghi Boroujeni, H. Nejat Pishkenari, H. Moradi and Gh.Vossoughi
- 65 **NUMERICAL SIMULATION OF ENERGY HARVESTING FROM A FLEXIBLE PLATE BEHIND A CYLINDER USING FLOW-INDUCED VIBRATIONS**
M. Poormomeni Firoozabadi, A. Tayebi and Y. Shekari
- 75 **PROCESSING OF THIN MAGNESIUM TUBES BY TUBULAR CHANNEL ANGULAR PRESSING (TCAP) PROCESS WITH TRAPEZOIDAL GEOMETRY**
M. Kamran Masouleh and A. Assempour
- 83 **BOUNDARY FEEDBACK TRAJECTORY TRACKING CONTROL OF RIGID BODIES WITH INTERIOR SHALLOW-WATER SLOSHING**
M. Jokar, H. Salarieh and H. Nejat Pishkenari
- 93 **SIMULATION AND THEORETICAL ANALYSIS OF THE NANOFUID-BASED OIL TRANSFORMERS FOR IMPROVING THE COOLING PERFORMANCE OF THE TRANSFORMER**
S.A.H. Zamzamian, S. Rezazade Mofradnia, M.R. Pazouki and M. Pazouki

APPENDIX

- 114 **ABSTRACTS OF PAPERS IN ENGLISH**