## **Mechanical Engineering**

## **Sharif**

Fall 2020

Editor-in-Chief: Mohammad Taghi Ahmadian

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

- 3 FINITE ELEMENT MODELING OF FATIGUE CRACK GROWTH IN CORRODED PIPELINE
  - M. Maranlou and M. Ganjiani
- 13 FAILURE AND COMPUTATIONAL FLUID DYNAMICS ANALYSIS OF PLATEN SUPERHEATER TUBES IN A 320 MW POWER PLANT TO PROVIDE AN OPTIMAL LAYOUT DESIGN

  A.A. Shami, S.E. Mosavi Torshizi and A. Jahangiri
- 21 INVESTIGATION OF THE EFFECT OF SPEED VARIATIONS ON THE CONTRA-ROTATING AXIAL COMPRESSOR STAGES
  S. Abbasi and M. Alizadeh
- 31 OPTIMUM MIXED (MARITIME-AERIAL) ROUTE-PLANNING USING MINIMUM SPANNING TREE AND INTEGER PROGRAMMING
  H. Moaddab, S.M.B. Malaek and A.R. Kosari
- 41 INVESTIGATION OF NANO-CLAY PARTICLES ADDITION ON MICROSTRUCTURE, FRACTURE SURFACE, AND MECHANICAL PROPERTIES OF PISTON ALUMINUM ALLOY IN AUTOMOTIVE ENGINE
  - M.Azadi, H. Bahmanabadi, J. Torkian and Gh. Nosrat
- 51 INVESTIGATION OF THERMOPHORESIS IMPACT ON FOAMED HEAT EXCHANGERS USING SIMULATION
  M.H. Pourezaei and M.R. Malayeri
- 61 DARRIEUS WIND TURBINE PERFORMANCE ENHANCEMENT USING VARIOUS FLOW CONTROL TECHNIQUES AND COMPARISON S. Karimian, M. Yadegari and Sh. Teymourpour
- 73 STUDYING THE PARAMETERS AFFECTING THE PERFORMANCE OF THE PERISTALTIC PUMP AND DESIGNING A SAMPLE
  M.S. Fathi and A. Hakkaki Fard
- 83 EXPERIMENTAL STUDY OF THE EFFECT OF SURFACE TYPE ON THE POOL BOILING HEAT TRANSFER CHARACTERISTICS IN THE PRESENCE OF NANOFLUIDS WITH HYBRID BASE FLUID
  A. Dallali, M. Khayat and M. Zareh
- 97 EXPERIMENTAL STUDY OF THE EFFECT OF OBSTACLE ROTATING INSIDE HEAT EXCHANGER TUBE ON HEAT TRANSFER AND FLOW CHARACTERISTICS
  - S.H. Banihashemi, M.R. Assari, S.M. Javadi and S. Vahidifar

## **APPENDIX**

118 ABSTRACTS OF PAPERS IN ENGLISH