

Mechanical Engineering

Sharif

1

spring
2013

Editor-in-Chief: Abolhassan Vafai

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 quarterly 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://www.journal.sharif.ir/> [http:// www. globalsciencejournals.com](http://www.globalsciencejournals.com)

E-mail: pajouhesh@sharif.edu

CONTENTS

- 3 **FAST DATA PROCESSING AND INVERSE AERODYNAMIC DESIGN, USING LOW-DIMENSIONAL POD METHOD**
M.k. Moayyedi, M. Taeibi-rahni and F. Sabetghadam
- 11 **ANALYTICAL INVESTIGATION ON THE STIFFNESS OF 3-DIMENSIONAL BRAIDED COMPOSITES BY A MULTI-UNIT CELL MODEL**
M. M. Shokrieh and M. S. Mazloomi
- 23 **EFFECT OF GRID RESOLUTION ON ACCURACY OF TRANSVERSAL ELASTIC WAVES IN A COMPOSITE PLATE USING SPECTRAL ELEMENT METHOD (SEM)**
H. Akharatdoost, M. Safdari-shadloo and M. Salehi
- 31 **A STUDY OF THE ROLE OF MICROSTRUCTURE AND GRAIN SIZE IN SURFACE ROUGHNESS OF AISI1045 WITHIN GRINDING**
H.R. Fazli and A.A. Akbari
- 41 **SIMULATION OF LARGE DEFORMATION PROCESSES USING ALE FINITE ELEMENT METHOD**
A.R. Shahani and M. Barati
- 53 **ERROR COMPENSATION DUE TO DIE-ELASTIC DEFLECTION IN GAS TURBINE BLADE FORGING, USING THREE DIMENSIONAL FINITE ELEMENT SIMULATION**
A. Khatouni and K. Abrinia
- 61 **SIMULATION OF IMMISCIBLE FLOW IN OIL RESERVOIRS INCLUDING GRAVITATIONAL EFFECTS**
M. Moshiri, M. T. Manzari and S. K. Hannani
- 69 **EXPERIMENTAL INVESTIGATION OF SWEEP ANGLE EFFECT ON THE FLOW FIELD OF A WING AT SUBSONIC REGIME**
M.R. Soltani , M. Masdari and K. Ghorbanian

RESEARCH NOTES:

- 77 **INVESTIGATION OF ELECTROKINETIC MIXING PERFORMANCE OF HETEROGENEOUS MICROCHANNELS**
J. Jamaati and H. Niazmand
- 87 **PREDICTION OF AERODYNAMIC COEFFICIENTS OF A SUPERSONIC WING USING BOUNDARY ELEMENT METHOD**
H. Shahverdi, M.h. Dolabi and M. Behbahani-nejad
- 93 **IDENTIFICATION OF THE KINEMATIC AND DYNAMIC PARAMETERS OF A 4-DOF PLANAR ROBOTIC MANIPULATOR**
S.M. Sadeghi, S.M.R. S. Noorani, and A. Ghanbari
- 103 **USING THERMAL BUOYANCY OF COMBUSTION HEATERS IN ORDER TO CONTROL INDOOR AIR QUALITY**
C. Noroozi, M. Marefat and S.A.R. Zolfaghari
- 113 **3D MODEL RECONSTRUCTION OF WEB PRODUCTION WITH IMAGE PROCESSING TECHNIQUE**
K. Khalili and S.M. Emam
- 125 **A STREAMLINE ALGORITHM FOR SOLVING INCOMPRESSIBLE ONE AND TWO-PHASE FLOW PROBLEMS IN TWO DIMENSIONAL RESERVOIRS USING STRUCTURED GRIDS**
S. A. Faroughi and M. T. Manzari

APPENDIX

- 146 **ABSTRACTS OF PAPERS IN ENGLISH**