

2015 • VOLUME 32 • ISSUE 3

INTERNATIONAL JOURNAL OF TURBO AND JET ENGINES

EDITOR-IN-CHIEF

Benjamin Gal-Or, Palm Beach

DEPUTY EDITOR-IN-CHIEF

Valery Sherbaum, Haifa

MANUSCRIPT EDITOR

Vladimir Erenburg, Haifa

EDITORIAL BOARD

E. Benstein

A. Brooks

Z. Goraj

R.D. Halverstadt

M.J. Ivanov

J. Jason

Changduk Kong

C. Kuintzle

L. Larsson

Shigeru Matsuo

R.K. Mishra

M.V. Narasimhan

Youry A. Noznitsky

N. Penny

C.R. Peterson

M.F. Platzer

A. Rao

Rishi S. Raj

D.B. Spalding

W. Tabakoff

E. Tjonneland

P.J. Torvik

P.C. Tramm

Mitch Wolff

S. Yu

J. Zierep

DE GRUYTER

ABSTRACTED/INDEXED IN Astrophysics Data System (ADS); Celdes; CNKI Scholar (China National Knowledge Infrastructure); CNPIEC; EBS-CO: TOC Premier, EBSCO Discovery Service; Elsevier: Compendex, Engineering Village, SCOPUS; Google Scholar; J-Gate; Naviga (Softweco); Primo Central (ExLibris); SCImago (SJR); Summon (Serials Solutions/ProQuest); TDOne (TDNet); TEMA Technik und Management; Thomson Reuters: Journal Citation Reports/Science Edition, Science Citation Index Expanded; Ulrich's Periodicals Directory/ulrichsweb; WorldCat (OCLC)

The publisher, together with the authors and editors, has taken great pains to ensure that all information presented in this work (programs, applications, amounts, dosages, etc.) reflects the standard of knowledge at the time of publication. Despite careful manuscript preparation and proof correction, errors can nevertheless occur. Authors, editors and publisher disclaim all responsibility for any errors or omissions or liability for the results obtained from use of the information, or parts thereof, contained in this work.

The citation of registered names, trade names, trademarks, etc. in this work does not imply, even in the absence of a specific statement, that such names are exempt from laws and regulations protecting trademarks etc. and therefore free for general use.

All information regarding notes for contributors, subscriptions, Open access, back volumes and orders is available online at www.degruyter.com/tjj

ISSN 0334-0082 · e-ISSN 2191-0332

RESPONSIBLE EDITOR Benjamin Gal-Or, Palm Beach, USA, galor612@hotmail.com

JOURNAL MANAGER Lissy Czolbe, De Gruyter, Genthiner Straße 13, 10785 Berlin, Germany. Tel.: +49 (0)30 260 05 – 380, Fax: +49 (0)30 260 05 – 250, Email: Lissy.Czolbe@degruyter.com

RESPONSIBLE FOR ADVERTISEMENTS Heiko Schulze, De Gruyter, Genthiner Straße 13, 10785 Berlin, Germany. Tel.: +49 (0)30.260 05 – 358, Fax: +49 (0)30.260 05 – 264, Email: anzeigen@degruyter.com

© 2015 Walter de Gruyter GmbH, Berlin/Munich/Boston

TYPESETTING Integra Software Services Pvt. Ltd., Pondicherry, India

PRINTING Franz X. Stücker Druck und Verlag e.K., Ettenheim

Printed in Germany

Cover Illustration: Hemera/Thinkstock



Contents

Jingyu Zhao, Zhenxia Liu, Yaguo Lu and Jianping Hu
Numerical Modeling of Unsteady Oil Film Motion Characteristics in Bearing Chambers — 233

Nan Liu, Jinquan Huang, Feng Lu and Muxuan Pan
Frequency Domain Identification of Multivariable Model for Aero-Engine using an Improved Maximum Likelihood Method — 247

Hanlin Sheng, Wei Huang, Tianhong Zhang and Xianghua Huang
Compressor Instability Active Control via Closed-Coupled Valve and Throttle Actuators — 257

Mrinal Kaushik and E. Rathakrishnan
Tab Aspect Ratio Effect on Supersonic Jet Mixing — 265

XiaoMei Guo, ZuChao Zhu, BaoLing Cui and Yi Li
The Rotating Cavitation Performance of a Centrifugal Pump with a Splitter-Bladed Inducer under Different Rotational Speed — 275

Benjamin Gal-Or
Global Needs for Jet-Engine-Steered (JES) Strike Drones vs. Lack of Updated Textbooks to Design 6th Generation UCLASS Due to UCAV Failure — 285

Jihyun Kim, Bosun Jang, Taesong Lee and Sejin Kwon
Lightweight Magnesium Bipolar Plates of Direct NaBH₄/H₂O₂ Fuel Cell for AIP Application — 291

Kazuhisa Chiba, Masahiro Kanazaki, Atthaphon Ariyarat, Hideyuki Yoda, Shoma Ito, Koki Kitagawa and Toru Shimada
Multidisciplinary Design Exploration for Sounding Launch Vehicle using Hybrid Rocket Engine in View of Ballistic Performance — 299