

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

D.P. Mishra

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) · Baidu Scholar · Celdes · CNKI Scholar (China National Knowledge Infrastructure) · CNPIEC · EBSCO (relevant databases) · EBSCO Discovery Service · Elsevier: Compendex; Engineering Village; Reaxys; SCOPUS · Gale/Cengage · Genamics JournalSeek · Google Scholar · J-Gate · JournalTOCs · Naviga (Softweco) · Primo Central (ExLibris) · ProQuest (relevant databases) · ReadCube · ResearchGate · SCImago (SJR) · Sherpa/RoMEO · 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 Marie Erdmann, De Gruyter, Genthiner Straße 13, 10785 Berlin, Germany. Tel.: +49 (0)30 260 05-380, Fax: +49 (0)30 260 05-229, Email: Marie.Erdmann@degruyter.com

RESPONSIBLE FOR ADVERTISEMENTS Claudia Neumann, De Gruyter, Genthiner Straße 13, 10785 Berlin, Germany, Tel.: +49 (0)30 260 05-226, Fax: +49 (0)30 260 05-264, Email: anzeigen@degruyter.com

© 2017 Walter de Gruyter GmbH, Berlin/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



Offenlegung der Inhaber und Beteiligungsverhältnisse gem. § 7a Abs. 1 Ziff. 1, Abs. 2 Ziff. 3 des Berliner Pressegesetzes: Die Gesellschafter der Walter de Gruyter GmbH sind: Cram, Gisela, Rentnerin, Berlin; Cram, Elsbeth, Pensionärin, Rosengarten-Alvesen; Cram, Dr. Georg-Martin, Unternehmens-Systemberater, Stadtbergen; Cram, Maike, Wien (Österreich); Cram, Jens, Mannheim; Cram, Ingrid, Betriebsleiterin, Tuxpan/Michoacan (Mexiko); Cram, Sabina, Mexico, DF (Mexiko); Cram, Silke, Wissenschaftlerin, Mexico DF (Mexiko); Cram, Björn, Aachen; Cram, Cram, Berit, Hamm; Cram-Gomez, Susana, Mexico DF (Mexiko); Cram-Heydrich, Walter, Mexico DF (Mexiko); Cram-Heydrich, Kurt, Angestellter, Mexico DF (Mexiko); Duvenbeck, Brigitta, Oberstudienrätin i.R., Bad Homburg; Gädeke, Gudula, M.A., Atemtherapeutin/Lehrerin, Tübingen; Gädeke, Martin, Einzelunternehmer, Ingolstadt; Lubasch, Dr. Annette, Ärztin, Berlin; Schütz, Dr. Christa, Ärztin, Mannheim; Schütz, Sonja, Berlin; Schütz, Julianne, Berlin; Schütz, Antje, Berlin; Schütz, Valentin, Mannheim; Seils, Dorothee, Apothekerin, Stuttgart; Seils, Gabriele, Journalistin, Berlin; Seils, Christoph, Journalist, Berlin; Siebert, John-Walter, Pfarrer, Oberstenfeld; Tran, Renate, Mediatorin, Zürich (Schweiz).

Contents

Xianggeng Wei, Jiang Li and Guoqiang He
Influence of Structural Parameters on the Performance of Vortex Valve Variable-Thrust Solid Rocket Motor — 1

Gautam Choubey and K. M. Pandey
Numerical Studies on the Performance of Scramjet Combustor with Alternating Wedge-Shaped Strut Injector — 11

R. K. Mishra, Johny Thomas, K. Srinivasan, Vaishakhi Nandi and R. Raghavendra Bhatt
Investigation of HP Turbine Blade Failure in a Military Turbofan Engine — 23

Wang Mu-xin, Liu Pei-jin, Yang Wen-jing and Wei Xiang-geng
Nozzle Admittance and Damping Analysis Using the LEE Method — 33

Bo Gyoung Kim, Dohyup Kwak, Byunghyun Kim, Hee ju Choi and Changduk Kong
Software Development for EECU Platform of Turbofan Engine — 43

Songbai Yao, Xinmeng Tang and Jianping Wang
Numerical Study of the Propulsive Performance of the Hollow Rotating Detonation Engine with a Laval Nozzle — 49

R. K. Mishra, R. Raghavendra Bhat and Sunil Chandel
Analysis of Compressor Surge in a Military Turbojet Engine: A Case Study — 55

Sun Shuang, Lei Zhijun, Lu Xin'gen, Zhang Yanfeng and Zhu Junqiang
The Combined Effects of Surface Roughness with Upstream Wakes on the Boundary Layer Development of an Ultra-High-Lift LPT Blade — 63

Junsu Shin and Hong-Gye Sung
Numerical Investigation of a Model Scramjet Combustor Using DDES — 75

Wang Zhiqiang, Lu Bo, Zhang Chenkai and Hu Jun
Flow Field Measurement in Multi-stage Axial Compressor Stator by Using Multi-hole Pneumatic Probes — 81

S. Boopathi and P. Maran
Effect of Air Pressure and Gutter Angle on Flame Stability and DeZubay Number for Methane-Air Combustion — 95

T. Berrueta and E. Rathakrishnan
Control of Subsonic and Sonic Jets with Limiting Tabs — 103