INTERNATIONAL JOURNAL OF TURBO AND JET ENGINES

EDITOR-IN-CHIEF
Valery Sherbaum, Haifa

EDITORIAL BOARD MEMBERS
Ernesto Benini, Padova
Saeed Farokhi, Lawrence, KS
Rama S. R. Gorla, Cleveland, OH
Changduk Kong, Kwangju
Yeshayahou Levy, Haifa
Debi Prasad Mishra, Kanpur
R. K. Mishra, Bangalore
Rishi S. Raj, New York, NY
Arvind Rao, Delft
Matsuo Shigeru, Saga
Yuan Wei, Chengdu
Shun-Peng Zhu, Shanghai

DE GRUYTER

ABSTRACTED/INDEXED IN Astrophysics Data System (ADS) · Baidu Scholar · CNKI Scholar (China National Knowledge Infrastructure) · CNPIEC: cnpLINKer · Dimensions · EBSCO (relevant databases) · EBSCO Discovery Service · Ei Compendex · Engineering Village · Genamics JournalSeek · Google Scholar · Inspec · Japan Science and Technology Agency (JST) · J-Gate · Journal Citation Reports/Science Edition · JournalGuide · JournalTOCs · KESLI-NDSL (Korean National Discovery for Science Leaders) · MyScienceWork · Naver Academic · Naviga (Softweco) · Primo Central (ExLibris) · ProQuest (relevant databases) · Publons · QOAM (Quality Open Access Market) · ReadCube · Reaxys · SCImago (SJR) · SCOPUS · Semantic Scholar · Sherpa/RoMEO · Summon (ProQuest) · TDNet · TEMA Technik und Management · Ulrich's Periodicals Directory/ulrichsweb · WanFang Data · Web of Science: Science Citation Index Expanded · WorldCat (OCLC) · X-MOL · Yewno Discover

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 Valery Sherbaum, Haifa, e-mail: valerys@technion.ac.il

PUBLISHER Walter de Gruyter GmbH, Berlin/Boston, Genthiner Straße 13, 10785 Berlin, Germany

JOURNAL COORDINATOR Torsten Krüger, De Gruyter, Genthiner Straße 13, 10785 Berlin, Germany, Tel.: +49 (0)30 260 05 – 176, e-mail: torsten.krueger@degruyter.com

ADVERTISEMENTS e-mail: anzeigen@degruyter.com

© 2023 Walter de Gruyter GmbH, Berlin/Boston, Germany

TYPESETTING TNQ Technologies, Chennai, India

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

Cover Illustration: Hemera/Thinkstock

Contents

Nivin Joy, Subramaniam Prakash, Arunagiri Krishnamoorthy and Pitchaimuthu Gunasekar
Characterization of titanium grade 5 alloy compressor blade in a jet engine using advanced materials for optimum thrust production —— 119

Jin Guo, Jun Hu and Baofeng Tu
Numerical investigation of total temperature distortion problem in a multistage fan based on body force approach —— 127

Benny George and Nagalingam Muthuveerappan
Life assessment of a high temperature probe designed for performance evaluation and health monitoring of an aero gas turbine engine —— 139

Eralp Sener, Isil Yazar, Gurhan Ertasgin and Hasan Yamik
Baseline architecture design for a turboelectric distributed propulsion system using single turboshaft engine operational scenario —— 147

Yan-Hua Ma, Xian Du, Lin-Feng Gou and Si-Xin Wen
Active fault tolerant control of turbofan engines with actuator faults under disturbances —— 159

Yuan Gao, Zhihua Xi, Chenxu Hu and Haibo Zhang
Modeling and mode transition simulation of over-under turbine based combined cycle (TBCC) propulsion system based on inlet/engine matching —— 171

Debi Prasad Mishra and M. Sankarganesh
Numerical analysis of high temperature gas flow through conical micronozzle —— 183

Ariel Y. Cohen, Artemii Sattarov, Kilian Claramunt, Jan E. Anker, Luigi Romagnosi, Yannick Baux and Charles Hirsch
Simulation and analysis of an aero-engine combustor with a slinger fuel injection system —— 193

Serhiy Serbin, Artem Kozlovskyi and Kateryna Burunsuz
Influence of plasma-chemical products on process stability in a low-emission gas turbine combustion chamber —— 203

Prasanta Kumar Mohanta, B. T. N. Sridhar and R. K. Mishra
Influence of nozzle exit geometrical parameters on supersonic jet decay —— 215

Saravanan A. R., Thanigaiarasu S., Rakesh Divvela and Rathakrishnan E.
Experimental investigation on mixing characteristics of high speed co-flow jets by using tabbed chevron nozzle —— 223

Inna Levitsky and Nikolay Razoronov
Study of a new effervescent atomizer design —— 229