JOURNAL OF THERMAL SCIENCE

CONTENTS

Volume 31, No. 1, January–February 2022

Special Issue for Asian Congress on Gas Turbines 2020 (ACGT2020) 1

ZHU Junqiang, HUANG Weiguang, ZHANG Hongwu, DU Juan

Aerodynamic

Behavior of Vaneless Diffuser Stall in a Centrifugal Compressor 3

AGARI Yuki, YAMAO Yoshifumi, FUJISAWA Nobumichi, OHTA Yutaka

Stall Behaviour in a Mixed-flow Compressor with Axial Slot Casing Treatment 13

QIU Jiahui, ZHANG Qianfeng, ZHANG Min, DU Juan, ZHANG Wenqiang, NIKLAS Maroldt, JOERG R. Seume

Effects of Various Geometric Features on the Performance of a 7:1 Pressure Ratio Deeply Scalloped and Split Radial Turbine in a Gas Turbine Engine 25

GAO Chuang, HUANG Weiguang

Calibration of S-duct Swirl Distortion Based on Vortex Identification Methods 35

SUN Dakun, LI Zhenyu, DONG Xu, SUN Xiaofeng

Assessment of the Turbulence Characteristics of Shaped Film Cooling Hole with Scale Resolving Simulation 47

WANG Qingsong, SU Xinrong, YUAN Xin

Computationally Efficient Large-Eddy Simulation of Periodic Unsteady Flow using Harmonic Balance Method 62

YUMA Iwamoto, SUSUMU Teramoto, KOJI Okamoto

Control of Snow Falling Flow around NACA0015 Blade using a Plasma Electrode with Weather Resistant Design 72

MATSUDA Hisashi, CHIBA Takahiro, YAGAMI Masaki, TAJIMA Yusuke, WATANABE Nobuyoshi, SATO Hideaki, TAKEYAMA Masafumi

Design Methods and Strategies for Forward and Inverse Problems of Turbine Blades Based on Machine Learning 82

ZHOU Haimeng, YU Kaituo, LUO Qiao, LUO Lei, DU Wei, WANG Songtao

Influence Factors for Impact Actions and Transient Trajectories of Fan Blades after Fan Blade Out in Typical 2-Shaft High Bypass Ratio Turbofan Engine 96

XU Xue, LI Hongxin, FENG Guoquan

Research on Calculation Method of Aerodynamic Parameters of Supersonic Probe Based on Gas Compressibility Factor 111

ZHONG Jingjun, HUANG Gangfeng, WU Wanyang, KAN Xiaoxu

Transition from Unsteady Flow Inception to Rotating Stall and Surge in a Transonic Compressor 120

CAO Dongming, YUAN Caijia, WANG Dingxi, HUANG Xiuquan

Instability Inception of a Single Rotor Embedded in a Transonic Stage with Partial Surge Inception 130

PAN Tianyu, WU Wenqian, ZHENG Mengzong, LI Qiushi

Effects of Width Variation of Pressure-Side Winglet on Tip Flow Structure in a Transonic Rotor 141

CUI Weiwei, WANG Xinglu, YAO Fei, ZHAO Qingjun, LIU Yuqiang, LIU Leinan, WANG Cuiping, YANG Laishun

Aerodynamic Performance Improvement of a Highly Loaded Compressor Airfoil with Coanda Jet Flap **151**
ZHANG Jian, DU Juan, ZHANG Min, CHEN Ze, ZHANG Hongwu, NIE Chaoqun
Calibration of Modified Spalart-Allmaras Model Parameters for Linear Compressor Cascade Corner Flow **163**
MATSUI Kotaro, PEREZ Ethan, KELLY T. Ryan, TANI Naoki, JEMCOV Aleksandar
Experimental Investigation of Aerodynamic Performance due to Blade Tip Clearance in a Gas Turbine Rotor Cascade **173**
CHUNG Jinmoo, BAEK Seungchan, HWANG Wontae
Influence of Hub Contouring on the Performance of a Transonic Axial Compressor Stage with Low Hub-Tip Ratio **179**
LI Xinlong, LIU Shuaipeng, GENG Shaojuan, ZHANG Hongwu

Combustion

Temperature Dependence of Laminar Burning Velocity in Ammonia/Dimethyl Ether-air Premixed Flames **189**
CAI Tao, ZHAO Dan
Experimental Investigations on NO_x Emission and Combustion Dynamics in an Axial Fuel Staging Combustor **198**
LI Yuze, JIA Yuliang, JIN Ming, ZHU Xutong, GE Bing, MAO Ronghai, REN Lilei, CHEN Mingmin, JIAO Guangyun
Effect of the Structure Parameters of a Low Swirler on Premixed Characteristics **207**
SHEN Siyuan, SONG Xiuyang, ZONG Chao, JI Chenzhen, ZHU Tong

Heat Transfer

Effects of Variable Jet Nozzle Angles on Cross-Flow Suppression and Heat Transfer Enhancement of Swirl Chamber **214**
XIAO Kun, HE Juan, FENG Zhenping
Overall Thermal Performances of Double-Wall Effusion Cooling Covered by Simulated Thermal Barrier Coatings **224**
PU Jian, ZHANG Tiao, HUANG Xin, WANG Jianhua, WU Weilong
Experimental Study on Impingement and Film Overall Cooling Characteristics of Turbine Shroud **239**
LI Ziqiang, WANG Longfei, MAO Junkui, BI Shuai, WANG Feilong

Gas Turbine System

Multiphysics Design of a High-Speed Permanent Magnet Machine for a Micro Gas Turbine Application **251**
ZHENG Mengzi, HUANG Weiguang, GAO Chuang, WU Fuxian
Off-Design Performance of 9F Gas Turbine Based on gPROMs and BP Neural Network Model **261**
HAO Xuedi, SUN Lei, CHI Jinling, ZHANG Shijie