CONTENTS

TURBOMACHINERY: AXIAL FLOW FAN AND COMPRESSOR AERODYNAMICS

GT2017-63020 ................................................................. V02AT39A001
Impact of Wake Dispersion on Axial Compressor Performance
Chunill Hah

GT2017-63031 ................................................................. V02AT39A002
Numerical Efforts of Aerodynamic Re-Design in a Single-Stage Transonic Axial Compressor:
Part 1 — Stator Design
Justin (Jongsik) Oh

GT2017-63051 ................................................................. V02AT39A003
Experimental and Numerical Investigation of a Circumferential Groove Casing Treatment in a
Low Speed Axial Research Compressor at Different Tip Clearances
Matthias Rolfes, Martin Lange, Konrad Vogeler, and Ronald Mailach

GT2017-63217 ................................................................. V02AT39A004
Influence of Tailored Boundary Layer Suction on Aerodynamic Performance in Bowed
Compressor Cascades
Ding Jun, Du Xin, Chen Shaowen, Zhou Xun, Wang Songtao, and Shen Jiaqi

GT2017-63235 ................................................................. V02AT39A005
Experimental Investigations of the Aerodynamics of Highly Loaded Tandem Vanes in a
High-Speed Stator Cascade
Alexander Heinrich, Christine Tiedemann, and Dieter Peitsch

GT2017-63246 ................................................................. V02AT39A006
Experimental Investigations on the Efficiency of Active Flow Control in a Compressor Cascade
With Periodic Non-Steady Outflow Conditions
Marcel Staats and Wolfgang Nitsche

GT2017-63261 ................................................................. V02AT39A007
Different Effects of Cantilevered and Shrouded Stators on Axial Compressor Performance
Xiayi Si, Jinfang Teng, Xiaqing Qiang, and Jinzhang Feng

GT2017-63283 ................................................................. V02AT39A008
Low Reynolds Number Response of High Efficiency, Intermediate Pressure Compressor Profiles
Benigno J. Lázaro, Ezequiel González, David Cadrecha, Antonio Antoran, and Jorge Parra

GT2017-63399 ................................................................. V02AT39A009
Numerical Studies on the Intrusive Influence of a Five-Hole Pressure Probe in a High-Speed
Axial Compressor
Christoph Sanders, Marius Terstegen, Magnus Hölle, Peter Jeschke, Harald Schönenborn, and
Tobias Fröbel

GT2017-63454 ................................................................. V02AT39A010
Hybrid RANS/LES Simulation of Corner Stall in a Linear Compressor Cascade
Guoping Xia and Gorazd Medic
Numerical Investigation on Effect of Compressor Performance in Single Rotor With Micro-Vortex Generator
Shan Ma, Wuli Chu, Haoguang Zhang, Jinhua Lang, and Haiyang Kuang

Impact of Vortex Produced by a Novel Curve-Micro Vortex Generator on Secondary Flow in Compressor Cascade
Shan Ma, Wuli Chu, Haoguang Zhang, Lanpan Li, and Jinhua Lang

Effect of Blade Aspiration Slot Configuration on the Aerodynamic Performance of a Highly Loaded Aspirated Compressor Cascade
Longxin Zhang, Le Cai, Bao Liu, Jun Ding, and Songtao Wang

Reduction of Pressure Losses in a Linear Cascade Using Herringbone Riblets
Qiang Liu, Shan Zhong, and Lin Li

Influence of Leading Edge Tubercles in an Annular Compressor Cascade With Different Hub-Tip Ratios and Aspect Ratios
Tan Zheng, Mingmin Zhu, Xiaqing Qiang, Jinfang Teng, and Jinzhang Feng

Comparison of Stall Characteristics of Multi-Stage and Single-Stage Transonic Axial Compressors
Young Seok Kang, Tae Choon Park, Byeung Jun Lim, and Hyung Soo Lim

Aerodynamic Design and Analysis of a Two-Stage High-Load Low-Reaction Transonic Aspirated Counter-Rotating Compressor
Shijun Sun, Songtao Wang, and Shaowen Chen

Numerical Research of Aerodynamic Sweep on Leading Edge in the Ram-Rotor
Jian Guan, Ji-ang Han, Jingjun Zhong, and Chenguang Yuan

Large Eddy Simulation of Tandem Blade Stator Cascades
Pratik Mitra, Jahnavi Kantharaju, Rohan Rayan, and Joseph Mathew

LES Loss Prediction in an Axial Compressor Cascade at Off-Design Incidences With Free Stream Disturbances
John Leggett, Stephan Priebe, Aamir Shabbir, Richard Sandberg, Edward Richardson, and Vittorio Michelassi

A High-Loaded Axial Compressor Bifurcate Stator Blade Aerodynamic Design and Vorticity Dynamics Diagnosis for Flow Structure
Huanlong Chen, Menghan Yu, Linxi Li, and Huaping Liu
GT2017-64403
Fan Blade Tip Aerodynamics With Realistic Operational Casing Geometries and Clearances
Alistair John, Ning Qin, and Shahrokh Shahpar

GT2017-64528
Turbomachinery Active Subspace Performance Maps
Pranay Seshadri, Shahrokh Shahpar, Paul Constantine, Geoffrey Parks, and Mike Adams

GT2017-64533
On Improving the Surge Margin of a Tip-Critical Axial Compressor Rotor
Marcus Lejon, Tomas Grönstedt, Niklas Andersson, Lars Ellbrant, and Hans Mårtensson

GT2017-64585
Development of Direct-Driven and Geared Fan Stages With Reduced Tip Speeds
S. V. Pankov, V. I. Mileshin, I. K. Orekhov, and V. A. Fateev

GT2017-64874
A Methodology for Variable Geometry Optimization of Multistage Axial Compressors
M. Eric Lyall, Fred J. Eisert, Douglas C. Rabe, and Patrick M. Fleisher

GT2017-64956
Technology Demonstration of a Splitted Transonic Rotor With a Downstream Variable Geometry Tandem Stator
Sabine Bauinger, Anthony J. Gannon, Garth V. Hobson, and Aaron D. Terrell

GT2017-64964
Simulation of Multi-Stage Compressor at Off-Design Conditions
Feng Wang, Mauro Carnevale, Luca di Mare, and Simon Gallimore

GT2017-65099
An Experimental Study of Stall Suppression and Associated Changes to the Flow Structures in the Tip Region of an Axial Low Speed Fan Rotor by Axial Casing Grooves
Huang Chen, Yuanchao Li, Subhra Shankha Koley, Nick Doeller, and Joseph Katz

GT2017-65114
Measurements and Characterization of Turbulence in the Tip Region of an Axial Compressor Rotor
Yuanchao Li, Huang Chen, and Joseph Katz

GT2017-65139
Computational Assessment of a 3-Stage Axial Compressor Which Provides Airflow to the NASA 11- by 11-Foot Transonic Wind Tunnel, Including Design Changes for Increased Performance
Sameer Kulkarni, Timothy A. Beach, Philip C. Jorgenson, and Joseph P. Veres

GT2017-65158
Control of the Corner Separation in a Linear Cascade by Trailing Gaps
Wenfeng Zhao, Bin Jiang, and Qun Zheng

GT2017-65192
A Study of Loss Mechanism in a Linear Compressor Cascade at the Corner Stall Condition
Zhiyuan Li, Juan Du, Aleksandar Jemcov, Xavier Ottavy, and Feng Lin
GT2017-63524
Influence of Gas-to-Wall Temperature Ratio on By-Pass Transition
Tânia S. Caçao Ferreira and Tony Arts

GT2017-63575
Investigation of the Influence of Leakages on Non Axisymmetric Endwall Contouring
Applied on 3D Steam Turbine Airfoils
Tobias W. Zimmermann, Manfred Wirsum, Andrew Fowler, and Kush Patel

GT2017-63606
The Behavior of Turbine Center Frames Under the Presence of Purge Flows

GT2017-63616
Impact of Individual High-Pressure Turbine Rotor Purge Flows on Turbine Center Frame Aerodynamics
S. Zerobin, C. Aldrian, A. Peters, F. Heitmeir, and E. Göttlich

GT2017-63769
Aerodynamic Performance of Tip Injections for a Winglet-Shrouded Linear Turbine Cascade
Min Zhang, Yan Liu, Meng-Chao Zhang, Bao-Xi Mo, and Jing-Guang Yang

GT2017-63772
Investigation of 3D Blade Design on Flow Field and Performance of a Low Pressure Turbine Stage
Zhiyuan Zhao, Xin Du, Fengbo Wen, and Zhongqi Wang

GT2017-63785
Influence of Combustor Flow With Swirl on Integrated Combustor Vane Concept Full-Stage Performance
Simon Jacobi and Budimir Rosic

GT2017-63790
Effect of Stage Axial Distances on the Aerodynamic Performance of Three-Stage Axial Turbine
Using Experimental Measurements and Numerical Simulations
Yang Chen, Zhuhai Zhong, Jun Li, Weijiu Zhou, Gangyun Zhong, Qi Sun, Yan Ping, and Shan Wang

GT2017-63865
An Experimental Investigation of the Effects of Grooved Tip Geometry on the Flow Field in a Turbine Cascade Passage Using Stereoscopic PIV
Yangtao Tian, Hongwei Ma, and Lixiang Wang

GT2017-63898
The Aerodynamic Optimization Design of Turbine Cascade With Nonaxisymmetric Endwall and Experimental Validations
Hao Liu, Xin Shen, Xiaocheng Zhu, Zhaohui Du, Hong Yang, and Rui Yang

GT2017-64153
InterTurb: High-Pressure Turbine Rig for the Investigation of Combustor-Turbine Interaction
T. Wolf, K. Lehmann, L. Willer, A. Pahs, M. Rößling, and L. Dorn
GT2017-64244
Accurate Estimation of Profile Losses and Analysis of Loss Generation Mechanisms in a Turbine Cascade
D. Lengani, D. Simoni, M. Ubaldi, P. Zunino, F. Bertini, and V. Michelassi

GT2017-64295
Seedgas Investigation of Turbine Stage and Seal Performance at Varying Cavity Purge Rates and Operating Speeds
Johan Dahlqvist and Jens Fridh

GT2017-64312
Aerodynamic Performance of an Unlocated High Pressure Turbine Rotor With Worn Tip Seal Fins
Lucas Pawsey, David John Rajendran, and Vassilios Pachidis

GT2017-64390
Experimental Investigation of Periodically Unsteady Wake Impact on the Secondary Flow in a 1.5 Stage Full Annular LPT Cascade With Modified T106 Blading
Martin Sinkwitz, David Engelmann, and Ronald Mailach

GT2017-64409
Next Generation Turbine Testing at DLR
Hans-Jürgen Rehder, Andreas Pahs, Martin Bittner, and Frank Kocian

GT2017-64422
On Scaling Method to Investigate High-Speed Over-Tip-Leakage Flow at Low-Speed Condition
Hongmei Jiang, Li He, Qiang Zhang, and Lipo Wang

GT2017-64478
Multi-Fidelity Modeling of a Fully-Featured HP Turbine Stage
Giorgio Occhioni, Shahrokh Shahpar, and Haidong Li

GT2017-64504
Numerical Studies on Combustor-Turbine Interaction at the Large Scale Turbine Rig (LSTR)
Jonathan Hilgert, Martin Bruschewski, Holger Werschnik, and Heinz-Peter Schiffer

GT2017-64580
The Effect of Turning Angle on the Loss Generation of LP Turbines
Diego Torre, Guillermo Garcia-Valdecasas, and David Cadrecha

GT2017-64684
Experimental Investigation of Total Pressure Loss Development in a Highly Loaded Low Pressure Turbine Cascade
Philip Bear, Mitch Wolff, Andreas Gross, Christopher R. Marks, and Rolf Sondergaard

GT2017-64705
Effect of Active Modulation of Through-Casing Coolant Injection on Turbine Efficiency
Brian M. T. Tang, Marko Bacic, and Peter T. Ireland

GT2017-64736
ECAT: An Engine Component Aerothermal Facility at the University of Oxford
Benjamin Kirollos, Roderick Lubbock, Paul Beard, Frédéric Goenaga, Anton Rawlinson, Erik Janke, and Thomas Povey
Part Load Behavior of the LP Part of an Industrial Gas Turbine
Milan V. Petrovic, Alexander Wiedermann, Srecko M. Nedeljkovic, and Milan Banjac

Analysis of the Performance of Plasma Actuators Under Low-Pressure Turbine Conditions
Based on Experiments and URANS Simulations
D. S. Martínez, E. Pescini, F. Marra, M. G. De Giorgi, and A. Ficarella

Experimental and Numerical Study of Honeycomb Tip on Suppressing Tip Leakage Flow in Turbine Cascade
Yunfeng Fu, Fu Chen, Huaping Liu, and Yanping Song

Author Index