

Journal of Engineering for Gas Turbines and Power

Published Monthly by ASME

VOLUME 132 • NUMBER 5 • MAY 2010

RESEARCH PAPERS

Gas Turbines: Coal, Biomass, and Alternative Fuels

051401 A New Kind of Multifunctional Energy System Based on Moderate Conversion of Chemical Energy of Fossil Fuels

Wei Han and Hongguang Jin

Gas Turbines: Combustion, Fuels, and Emissions

051501 Effects of a Reacting Cross-Stream on Turbine Film Cooling Wesly S. Anderson, Marc D. Polanka, Joseph Zelina, Dave S. Evans, Scott D. Stouffer, and Garth R. Justinger

051502 Ignition and Oxidation of 50/50 Butane Isomer Blends
Nicole Donato, Christopher Aul, Eric Petersen, Christopher Zinner,
Henry Curran, and Gilles Bourque

051503 Experimental Analysis of the Combustion Behavior of a Gas Turbine Burner by Laser Measurement Techniques
Holger Ax, Ulrich Stopper, Wolfgang Meier, Manfred Aigner, and Felix Güthe

Gas Turbines: Controls, Diagnostics, and Instrumentation

051601 Hybrid Wireless-Wired Optical Sensor for Extreme Temperature
Measurement in Next Generation Energy Efficient Gas Turbines
Nabeel A. Riza. Mumtaz Sheikh, and Frank Perez

051602 Active Compressor Stability Management Via a Stall Margin Control Mode

Yuan Liu, Manuj Dhingra, and J. V. R. Prasad

Gas Turbines: Electric Power

051801 New Steel Alloys for the Design of Heat Recovery Steam Generator Components of Combined Cycle Gas Plants
Jorge Pinto Fernandes, Eduardo Manuel Dias Lopes, and

Vicente Maneta

Gas Turbines: Manufacturing, Materials, and Metallurgy

052101 Computational Design of Corrosion-Resistant Fe-Cr-Ni-Al Nanocoatings for Power Generation
K. S. Chan, W. Liang, N. S. Cheruvu, and D. W. Gandy

Gas Turbines: Oil and Gas Applications

052401 A Cyclic Life Prediction Approach for Directionally Solidified Nickel Superalloys

Roland Mücke and Piyawan Woratat

Gas Turbines: Structures and Dynamics

Overcoming of a Resonance Stall and the Minimization of Amplitudes in the Transient Resonance of a Vibratory Machine by the Phase Modulation Method

J. Michalczyk and Ł. Bednarski

(Contents continued on inside back cover)

This journal is printed on acid-free paper, which exceeds the ANSI Z39.48-1992 specification for permanence of paper and library materials. ⊗™

⑤ 85% recycled content, including 10% post-consumer fibers.