



JPT

# 推进技术

推进技术



# 推进技术

第 41 卷 第 9 期

总第 279 期

2020 年 9 月

(月刊)

## 目 次

### 总体与系统

- 变循环涡扇冲压组合发动机发展现状及关键技术分析 ..... 王占学, 张明阳, 张晓博, 周莉 (1921)  
研发阶段涡扇发动机模型自适应方法 ..... 贾琳渊, 程荣辉, 张志舒, 陈玉春, 王笑晨 (1935)

### 气动热力学

- 高负荷压气机叶栅内三维旋涡结构及其形成机理的研究进展 ..... 钟兢军, 阚晓旭 (1946)  
真实运行状态下叶顶间隙尺寸波动对跨声速转子气动性能的影响研究 ..... 马驰, 高丽敏, 李瑞宇, 李杰 (1958)  
周向畸变下轴流压气机的失速预警方法研究及应用 ..... 刘洋, 李继超, 杜娟, 张宏武, 聂超群 (1967)  
涡轮转子凹槽叶尖泄漏流动气动热力特征 ..... 邹正平, 姚李超, 轩笠铭, 邵飞, 黄霖, 贺晓娟 (1975)  
有无叶顶冷却涡轮叶栅气热性能的旋转效应研究 ..... 张敏, 刘艳, 杨金广, 杨帅 (1988)  
喷水射流预冷对发动机进气温度及流场变化影响的数值研究 ..... 陆禹铭, 徐倩楠, 吴峰, 张海 (1999)  
低损失融合式预旋喷嘴设计与研究 ..... 唐国庆, 薛伟鹏, 曾军, 赵云 (2011)  
唇口几何参数对短舱进气道性能影响数值研究 ..... 齐昊, 王占学, 周莉, 邓文剑 (2021)  
基于通流程序的低速模拟气动设计及数值验证 ..... 杨晓飞, 高海洋, 孟德君 (2031)

### 燃烧 传热 传质

- 航空发动机燃油雾化特性研究进展 ..... 严红, 陈福振 (2038)  
新型翅片式减涡器减阻特性数值研究 ..... 侯晓亭, 王锁芳, 张凯, 夏子龙 (2059)  
狭缝斜肋内冷通道流动和换热特性的数值研究 ..... 邓贺方, 姜玉廷, 张建, 陆松兵, 郑群 (2070)  
直肋对扩张型尾缘半劈缝气膜冷却特性影响的实验研究 ..... 叶林, 刘存良, 杨寓全 (2077)  
燃料分级对旋流火焰的动态特性影响研究 ..... 张志浩, 巩耀旗, 刘潇, 杨家龙, 郑洪涛 (2088)

## 结构 强度 可靠性

- 突加高能载荷作用下航空发动机结构动态响应及安全性综述 .....  
.....陈伟,刘璐璐,宣海军,罗刚,赵振华,韩佳奇,周标 (2099)  
压气机转子叶片的抑颤设计 .....李迪,张晓杰,王延荣 (2120)

## 测试 试验 控制

- 高速推进系统温度测量技术发展现状 .....付蒙,张海洲,殷建锋,蒋妮,李俊杰 (2130)

## 材料 推进剂 燃料

- SiC/SiC复合材料氧化退化研究进展 .....陈西辉,孙志刚,牛序铭,江荣,高希光,宋迎东 (2143)

# JOURNAL OF PROPULSION TECHNOLOGY

Vol. 41 No. 9 Sum No. 279

Sep. 2020 (Monthly)

## CONTENTS

### System

- Development Status and Key Technologies of Variable Cycle Turbofan-Ramjet Engine .....  
.....WANG Zhan-xue, ZHANG Ming-yang, ZHANG Xiao-bo, ZHOU Li (1921)  
Adaptive Modelling for Turbofan Engine in Development Stage .....  
.....JIA Lin-yuan, CHENG Rong-hui, ZHANG Zhi-shu, CHEN Yu-chun, WANG Xiao-chen (1935)

### Aero-thermodynamics

- Research Progress on Three-Dimensional Vortex Structures and Formation Mechanism of High-Loaded Compressor Cascades .....  
.....ZHONG Jing-jun, KAN Xiao-xu (1946)  
Effects of Tip Clearance Size Fluctuation in Actual Operations on Aerodynamic Performance of a Transonic Rotor .....  
.....MA Chi, GAO Li-min, LI Rui-yu, LI Jie (1958)  
Stall Warning Method Investigation and Application in anAxial-Flow Compressor with Circumferential Distortion .....  
.....LIU yang, LI Ji-chao, DU Juan, ZHANG Hong-wu, NIE Chao-qun (1967)  
Aero-Thermodynamic Characteristics of Tip Leakage Flow in Turbine Rotor with Squealer Tip .....  
.....ZOU Zheng-ping, YAO Li-chao, XUAN Li-ming, SHAO Fei, HUANG Lin, HE Xiao-juan (1975)  
Rotating Effects on Aero-Thermal Performance of a Turbine Cascade with and Without Tip Cooling .....  
.....ZHANG Min, LIU Yan, YANG Jin-guang, YANG Shuai (1988)  
Numerical Study on Effects of Water Injection Pre-compressor Cooling on Engine Inlet Temperature and Flow Field Change .....  
.....LU Yu-ming, XU Qian-nan, WU Feng, ZHANG Hai (1999)  
Design and Study of Low Loss Integrated Pre-swirl Nozzle .....TANG Guo-qing, XUE Wei-peng, ZENG Jun, ZHAO Yun (2011)  
Numerical Study on Effects of Lip Geometric Parameters on Performance of Nacelle Inlet .....  
.....QI Min, WANG Zhan-xue, ZHOU Li, DENG Wen-jian (2021)  
Aerodynamic Design and Numerical Verification of Low-Speed Simulation Based on Throughflow Program .....  
.....YANG Xiao-fei, GAO Hai-yang, MENG De-jun (2031)

### Combustion, Heat and Mass Transfer

- Review on Fuel Atomization in Aeroengine .....YAN Hong, CHEN Fu-zhen (2038)  
Numerical Investigation on Resistance Reduction Characteristics of New Finned Vortex Reducer Device .....  
.....HOU Xiao-ting, WANG Suo-fang, ZHANG Kai, XIA Zi-long (2059)  
Numerical Study on Flow and Heat Transfer Characteristics of Internal Cooling Channel with Slit Inclined Ribs .....  
.....DENG He-fang, JIANG Yu-ting, ZHANG Jian, LU SONG-bing, ZHENG Qun (2070)  
Experimental Investigation of Effects of Straight Ribs on Film Cooling Performance of Expanded Cutback Surface for Trailing-Edge .....  
.....YE Lin, LIU Cun-liang, YANG Yu-quan (2077)  
Effects of Fuel Stage on Dynamic Characteristics of Swirling Flame .....  
.....ZHANG Zhi-hao, GONG Yao-zhen, LIU Xiao, YANG Jia-long, ZHENG Hong-tao (2088)

## **Structure, Strength and Reliability**

- Review on Dynamic Response and Safety of Engine Structure under Sudden High Energy Load .....  
.....CHEN Wei, LIU Lu-lu, XUAN Hai-jun, LUO Gang, ZHAO Zhen-hua, HAN Jia-qi, ZHOU Biao (2099)  
Design for Flutter Suppression of Rotor Blade in a Compressor .....LI Di, ZHANG Xiao-jie, WANG Yan-rong (2120)

## **Test, Experiment and Control**

- Development Status of Temperature Measurement Technology for High Speed Propulsion System .....  
.....FU Meng, ZHANG Hai-zhou, YIN Jian-feng, JIANG Ni, LI Jun-jie (2130)

## **Material, Propellant and Fuel**

- Research Progress of Oxidation Degradation of SiC/SiC Composites .....  
.....CHEN Xi-hui, SUN Zhi-gang, NIU Xu-ming, JIANG Rong, GAO Xi-guang, SONG Ying-dong (2143)