北京航空航天大學

文献收录、影响因子及 JCR 学科分区检索证明

作者姓名：闻洁 (Wen，Jie)

经检索“网络版科学引文索引（SCI-EXPANDED）”数据库，该作者发表的论文（2016 年-2018 年），被收录 15 篇。

检索结果见附件，共 15 页。

检索时间为 2018 年 5 月 15 日。

特此证明！

证明人（签字）：

证明单位（盖章）：北京航空航天大学图书馆

二〇一八年五月十五日

北京航空航天大学 检索专用章

附件：

第 1 条，共 15 条

标题: Distributed collaborative probabilistic design of multi-failure structure with fluid-structure interaction using fuzzy neural network of regression

作者: Song, LK (Song, Lu-Kai); Wen, J (Wen, Jie); Fei, CW (Fei, Cheng-Wei); Bai, GC (Bai, Guang-Chen)

来源出版物: MECHANICAL SYSTEMS AND SIGNAL PROCESSING 卷: 104 页: 72-86 DOI: 10.1016/j.ymssp.2017.09.039 出版年: MAY 1 2018

Web of Science 核心合集中的 "被引频次": 0

被引频次合计: 0

入藏号: WOS:000423652800005

地址: [Song, Lu-Kai; Wen, Jie; Fei, Cheng-Wei; Bai, Guang-Chen] Beihang Univ, Sch Energy & Power Engn, Beijing 100191, Peoples R China.

[Fei, Cheng-Wei] Hong Kong Polytech Univ, Dept Mech Engn, Kowloon, Hong Kong, Peoples R China.

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MECHANICAL SYSTEMS AND SIGNAL PROCESSING

影响因子

4.116 4.874

2016 5年

JCR®类别	类别中的排序	JCR分区
ENGINEERING, MECHANICAL	4/130	Q1

数据来自第 2016版 Journal Citation Reports

出版商

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ISSN 0888-3270

研究领域

Engineering

第 2 条，共 15 条

标题: Convective heat transfer of a rotating multi-stage cavity with axial throughflow

作者: Quan, YK (Quan, Yongkai); Han, D (Han, Di); Xu, GQ (Xu, Guoqiang); Wen, J (Wen, Jie); Luo, X (Luo, Xiang)

来源出版物: INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER 卷: 119 页: 117-127 DOI: 10.1016/j.ijheatmasstransfer.2017.11.110 出版年: APR 2018

Web of Science 核心合集中的 "被引频次": 0

被引频次合计: 0

入藏号: WOS:000423893700011

地址: [Quan, Yongkai; Han, Di; Xu, Guoqiang; Wen, Jie; Luo, Xiang] Beihang Univ, Sch Energy & Power Engn, Natl Key Lab Sci & Technol Aerothermodynam, Beijing 100191, Peoples R China.

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IDS 号: FU5LH

ISSN: 0017-9310

eISSN: 1879-2189

第 3 条，共 15 条

标题: Thermodynamic and economic analysis of zeotropic mixtures as working fluids in low temperature organic Rankine cycles

作者: Dong, BS (Dong, Bensi); Xu, GQ (Xu, Guoqiang); Li, TT (Li, Tingting); Quan, YK (Quan, Yongkai); Wen, J (Wen, Jie)

来源出版物: APPLIED THERMAL ENGINEERING 卷: 132 页: 545-553 DOI: 10.1016/j.applthermaleng.2017.12.083 出版年: MAR 5 2018
Web of Science 核心合集中的 "被引频次": 1
被引频次合计: 1
入藏号: WOS:000426021800048

地址: [Dong, Bensi; Xu, Guoqiang; Quan, Yongkai; Wen, Jie] Beihang Univ, Sch Energy & Power Engn, Natl Key Lab Sci & Technol Aerothermodynam, Beijing 100191, Peoples R China.
[Li, Tingting] Texas A&M Univ, Dept Mech Engn, College Stn, TX 77843 USA.
通讯作者地址: Wen, J (通讯作者),Beihang Univ, Sch Energy & Power Engn, Natl Key Lab Sci & Technol Aerothermodynam, Beijing 100191, Peoples R China.
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ISSN: 1359-4311

APPLIED THERMAL ENGINEERING

影响因子

3.444	3.684
2016	5年

JCR类别	类别中的排序	JCR分区
ENERGY & FUELS	29/92	Q2
ENGINEERING, MECHANICAL	12/130	Q1
MECHANICS	10/133	Q1
THERMODYNAMICS	8/58	Q1

数据来自第 2016 版 Journal Citation Reports

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研究领域
Thermodynamics
Energy & Fuels
Engineering
Mechanics

第 4 条，共 15 条

标题: Numerical prediction of velocity coefficient for a radial-inflow turbine stator using R123 as working fluid

作者: Dong, BS (Dong, Bensi); Xu, GQ (Xu, Guoqiang); Li, TT (Li, Tingting); Quan, YK (Quan, Yongkai); Zhai, LJ (Zhai, Lijing); Wen, J (Wen, Jie)

来源出版物: APPLIED THERMAL ENGINEERING 卷: 130 页: 1256-1265 DOI: 10.1016/j.applthermaleng.2017.11.063 出版年: FEB 5 2018

Web of Science 核心合集中的 "被引频次": 0

被引频次合计: 0

入藏号: WOS:000424177600112

地址: [Dong, Bensi; Xu, Guoqiang; Quan, Yongkai; Zhai, Lijing; Wen, Jie] Beihang Univ, Sch Energy & Power Engn, Natl Key Lab Sci & Technol Aerothermodynam, Beijing 100191, Peoples R China.
[Li, Tingting] Texas A&M Univ, Dept Mech Engn, College Stn, TX 77843 USA.
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APPLIED THERMAL ENGINEERING

影响因子

3.444 3.684

2016 5年

JCR® 类别	类别中的排序	JCR 分区
ENERGY & FUELS	29/92	Q2
ENGINEERING, MECHANICAL	12/130	Q1
MECHANICS	10/133	Q1
THERMODYNAMICS	8/58	Q1

数据来自第 2016 版 Journal Citation Reports

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研究领域
Thermodynamics
Energy & Fuels
Engineering
Mechanics

第 5 条，共 15 条

标题: Thermal oxidation coking of aviation kerosene RP-3 at supercritical pressure in helical tubes

作者: Fu, YC (Fu, Yanchen); Xu, GQ (Xu, Guoqiang); Wen, J (Wen, Jie); Huang, HR (Huang, Haoran)

来源出版物: APPLIED THERMAL ENGINEERING 卷: 128 页: 1186-1195 DOI: 10.1016/j.applthermaleng.2017.09.101 出版年: JAN 5 2018

Web of Science 核心合集中的 "被引频次": 0

被引频次合计: 0

入藏号: WOS:000414884700112

地址: [Fu, Yanchen; Xu, Guoqiang; Wen, Jie; Huang, Haoran] Beihang Univ, Natl Key Lab Sci & Technol Aeroengine Aerothermod, Collaborat Innovat Ctr Adv Aeroengine, Sch Energy & Power Engn, Beijing 100191, Peoples R China.

通讯作者地址: Wen, J (通讯作者),Beihang Univ, Natl Key Lab Sci & Technol Aeroengine Aerothermod, Collaborat Innovat Ctr Adv Aeroengine, Sch Energy & Power Engn, Beijing 100191, Peoples R China.

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APPLIED THERMAL ENGINEERING

影响因子

3.444 3.684

2016 5年

JCR® 类别	类别中的排序	JCR 分区
ENERGY & FUELS	29/92	Q2
ENGINEERING, MECHANICAL	12/130	Q1
MECHANICS	10/133	Q1
THERMODYNAMICS	8/58	Q1

数据来自第 2016 版 Journal Citation Reports

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研究领域

Thermodynamics
Energy & Fuels
Engineering
Mechanics

第 6 条，共 15 条

标题: An improved modeling for low-grade organic Rankine cycle coupled with optimization design of radial-inflow turbine

作者: Zhai, LJ (Zhai, Lijing); Xu, GQ (Xu, Guoqiang); Wen, J (Wen, Jie); Quan, YK (Quan, Yongkai); Fu, J (Fu, Jian); Wu, HW (Wu, Hongwei); Li, TT (Li, Tingting)

来源出版物: ENERGY CONVERSION AND MANAGEMENT 卷: 153 页: 60-70 DOI: 10.1016/j.enconman.2017.09.063 出版年: DEC 1 2017

Web of Science 核心合集中的 "被引频次": 0

被引频次合计: 0

入藏号: WOS:000417659400006

地址: [Zhai, Lijing; Xu, Guoqiang; Wen, Jie; Quan, Yongkai; Fu, Jian] Beihang Univ, Sch Energy & Power Engn, Natl Key Lab Sci & Technol Aeroengine Aerothermod, Beijing 100191, Peoples R China.
[Wu, Hongwei] Univ Hertfordshire, Sch Engn & Technol, Hatfield AL10 9AB, Herts, England.
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通讯作者地址: Wen, J (通讯作者),Beihang Univ, Sch Energy & Power Engn, Natl Key Lab Sci & Technol Aeroengine Aerothermod, Beijing 100191, Peoples R China.
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IDS 号: FP5KW

ISSN: 0196-8904

eISSN: 1879-2227

第 7 条，共 15 条

标题: Buoyancy effects on heat transfer to supercritical pressure hydrocarbon fuel in a horizontal miniature tube

作者: Wen, J (Wen, Jie); Huang, HR (Huang, Haoran); Jia, ZX (Jia, Zhouxia); Fu, YC (Fu, Yanchen); Xu, GQ (Xu, Guoqiang)

来源出版物: INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER 卷: 115 页: 1173-1181 DOI: 10.1016/j.ijheatmasstransfer.2017.08.116 子辑: B 出版年: DEC 2017

Web of Science 核心合集中的 "被引频次": 0

被引频次合计: 0

入藏号: WOS:000414108400102

地址: [Wen, Jie; Huang, Haoran; Fu, Yanchen; Xu, Guoqiang] Beihang Univ, Natl Key Lab Sci & Technol Aeroengine Aerothermod, Collaborat Innovat Ctr Adv Aeroengine, Sch Energy & Power Engn, Beijing 100191, Peoples R China.

[Jia, Zhouxia] Beijing Inst Struct & Environm Engn, Sci & Technol Reliabil & Environm Engn Lab, Beijing 100076, Peoples R China.

通讯作者地址: Fu, YC (通讯作者),Beihang Univ, Natl Key Lab Sci & Technol Aeroengine Aerothermod, Collaborat Innovat Ctr Adv Aeroengine, Sch Energy & Power Engn, Beijing 100191, Peoples R China.

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INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER

影响因子

3.458 3.552

2016 5年

JCR®类别	类别中的排序	JCR 分区
ENGINEERING, MECHANICAL	11/130	Q1
MECHANICS	9/133	Q1
THERMODYNAMICS	7/58	Q1

数据来自第 2016 版 Journal Citation Reports

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研究领域
Thermodynamics
Engineering
Mechanics

第 8 条，共 15 条

标题: Thermal and hydraulic performance of a compact plate finned tube air-fuel heat exchanger for aero-engine

作者: Wen, J (Wen, Jie); Huang, HR (Huang, Haoran); Li, HW (Li, Haiwang); Xu, GQ (Xu, Guoqiang); Fu, YC (Fu, Yanchen)

来源出版物: APPLIED THERMAL ENGINEERING 卷: 126 页: 920-928 DOI: 10.1016/j.applthermaleng.2017.07.103 出版年: NOV 5 2017

Web of Science 核心合集中的 "被引频次": 1

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入藏号: WOS:000412251200083

地址: [Wen, Jie; Huang, Haoran; Li, Haiwang; Xu, Guoqiang; Fu, Yanchen] Beihang Univ, Natl Key Lab Sci & Technol Aero Engines Aerotherm, Beijing 100191, Peoples R China.

[Wen, Jie; Li, Haiwang; Xu, Guoqiang] Beihang Univ, Collaborat Innovat Ctr Adv Aeroengine China, Beijing 100191, Peoples R China.

[Li, Haiwang] Beihang Univ, Aircraft Engine Integrated Syst Safety Beijing Ke, Beijing 100191, Peoples R China.

通讯作者地址: Huang, HR (通讯作者),Beihang Univ, Natl Key Lab Sci & Technol Aero Engines Aerotherm, Beijing 100191, Peoples R China.

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APPLIED THERMAL ENGINEERING

影响因子

3.444	3.684
2016	5 年

JCR 类别	类别中的排序	JCR 分区
ENERGY & FUELS	29/92	Q2
ENGINEERING, MECHANICAL	12/130	Q1
MECHANICS	10/133	Q1
THERMODYNAMICS	8/58	Q1

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ISSN 1359-4311

研究领域

Thermodynamics
Energy & Fuels
Engineering
Mechanics

第 9 条，共 15 条

标题: An experimental investigation on heat transfer enhancement of sprayed wire-mesh heat exchangers

作者: Fu, YC (Fu, Yanchen); Wen, J (Wen, Jie); Zhang, CZ (Zhang, Cuizhen)

来源出版物: INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER 卷: 112 页: 699-708 DOI: 10.1016/j.ijheatmasstransfer.2017.05.026 出版年: SEP 2017

Web of Science 核心合集中的 "被引频次": 2

被引频次合计: 2

入藏号: WOS:000404198600062

地址: [Fu, Yanchen; Wen, Jie; Zhang, Cuizhen] Beihang Univ, Sch Energy & Power Engn, Collaborat Innovat Ctr Adv Aeroengine, Natl Key Lab Sci & Technol Aeroengine Aerothermod, Beijing 100191, Peoples R China.

通讯作者地址: Wen, J (通讯作者),Beihang Univ, Sch Energy & Power Engn, Collaborat Innovat Ctr Adv Aeroengine, Natl Key Lab Sci & Technol Aeroengine Aerothermod, Beijing 100191, Peoples R China.

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IDS 号: EY7UV

ISSN: 0017-9310

eISSN: 1879-2189

第 10 条，共 15 条

标题: Experimental investigation on convective heat transfer of supercritical RP-3 in vertical miniature tubes with various diameters

作者: Fu, YC (Fu, Yanchen); Huang, HR (Huang, Haoran); Wen, J (Wen, Jie); Xu, GQ (Xu, Guoqiang); Zhao, W (Zhao, Wei)

来源出版物: INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER 卷: 112 页: 814-824 DOI: 10.1016/j.ijheatmasstransfer.2017.05.008 出版年: SEP 2017

Web of Science 核心合集中的 "被引频次": 1

被引频次合计: 1

入藏号: WOS:000404198600071

地址: [Fu, Yanchen; Huang, Haoran; Wen, Jie; Xu, Guoqiang; Zhao, Wei] Beihang Univ, Sch Energy & Power Engn, Collaborat Innovat Ctr Adv Aeroengine, Natl Key Lab Sci & Technol Aeroengine Aerothermod, Beijing 100191, Peoples R China.

通讯作者地址: Wen, J (通讯作者),Beihang Univ, Sch Energy & Power Engn, Collaborat Innovat Ctr Adv Aeroengine, Natl Key Lab Sci & Technol Aeroengine Aerothermod, Beijing 100191, Peoples R China.

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ISSN: 0017-9310

eISSN: 1879-2189

第 11 条，共 15 条

标题: Heat transfer performance of aviation kerosene RP-3 flowing in a vertical helical tube at supercritical pressure

作者: Wen, J (Wen, Jie); Huang, HR (Huang, Haoran); Fu, YC (Fu, Yanchen); Xu, GQ (Xu, Guoqiang); Zhu, K (Zhu, Kun)

来源出版物: APPLIED THERMAL ENGINEERING 卷: 121 页: 853-862 DOI: 10.1016/j.applthermaleng.2017.04.055 出版年: JUL 5 2017

Web of Science 核心合集中的 "被引频次": 0

被引频次合计: 0

入藏号: WOS:000406169600080

地址: [Wen, Jie; Huang, Haoran; Fu, Yanchen; Xu, Guoqiang] Beihang Univ, Sch Energy & Power Engn, Collaborat Innovat Ctr Adv Aeroengine, Natl Key Lab Sci & Technol Aeroengine Aerothermod, Beijing 100191, Peoples R China.

[Zhu, Kun] AVIC Acad Aeronaut Prop Technol, Beijing 103400, Peoples R China.

通讯作者地址: Fu, YC (通讯作者),Beihang Univ, Sch Energy & Power Engn, Collaborat Innovat Ctr Adv Aeroengine, Natl Key Lab Sci & Technol Aeroengine Aerothermod, Beijing 100191, Peoples R China.

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APPLIED THERMAL ENGINEERING

影响因子

3.444 3.684

2016 5 年

JCR 类别	类别中的排序	JCR 分区
ENERGY & FUELS	29/92	Q2
ENGINEERING, MECHANICAL	12/130	Q1
MECHANICS	10/133	Q1
THERMODYNAMICS	8/58	Q1

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研究领域

Thermodynamics
Energy & Fuels
Engineering
Mechanics

第 12 条，共 15 条

标题: Surface coking deposition influences on flow and heat transfer of supercritical hydrocarbon fuel in helical tubes

作者: Fu, YC (Fu, Yanchen); Wen, J (Wen, Jie); Tao, Z (Tao, Zhi); Xu, GQ (Xu, Guoqiang); Huang, HR (Huang, Haoran)

来源出版物: EXPERIMENTAL THERMAL AND FLUID SCIENCE 卷: 85 页: 257-265 DOI: 10.1016/j.expthermflusci.2017.03.016 出版年: JUL 2017

Web of Science 核心合集中的 "被引频次": 2

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入藏号: WOS:000400533300022

地址: [Fu, Yanchen; Wen, Jie; Tao, Zhi; Xu, Guoqiang; Huang, Haoran] Beihang Univ, Sch Energy & Power Engn, Natl Key Lab Sci & Technol Aeroengine Aerothermod, Collaborat Innovat Ctr Adv Aeroengine, Beijing 100191, Peoples R China.

通讯作者地址: Wen, J (通讯作者),Beihang Univ, Sch Energy & Power Engn, Natl Key Lab Sci & Technol Aeroengine Aerothermod, Collaborat Innovat Ctr Adv Aeroengine, Beijing 100191, Peoples R China.

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IDS 号: ET8FB

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EXPERIMENTAL THERMAL AND FLUID SCIENCE

第 13 条，共 15 条

标题: Experimental research on convective heat transfer of supercritical hydrocarbon fuel flowing through U-turn tubes

作者: Fu, YC (Fu, Yanchen); Wen, JE (Wen, Jie); Tao, Z (Tao, Zhi); Xu, GQ (Xu, Guoqiang); Huang, HR (Huang, Haoran)

来源出版物: APPLIED THERMAL ENGINEERING 卷: 116 页: 43-55 DOI: 10.1016/j.applthermaleng.2017.01.058 出版年: APR 2017

Web of Science 核心合集中的 "被引频次": 5

被引频次合计: 5

入藏号: WOS:000397550300005

地址: [Fu, Yanchen; Wen, Jie; Tao, Zhi; Xu, Guoqiang; Huang, Haoran] Beihang Univ, Collaborat Innovat Ctr Adv Aeroengine, Sch Energy & Power Engn, Natl Key Lab Sci & Technol Aeroengine Aerothermod, Beijing 100191, Peoples R China.

通讯作者地址: Wen, J (通讯作者),Beihang Univ, Collaborat Innovat Ctr Adv Aeroengine, Sch Energy & Power Engn, Natl Key Lab Sci & Technol Aeroengine Aerothermod, Beijing 100191, Peoples R China.

电子邮件地址: wenjie@buaa.edu.cn

IDS 号: EP7IA

ISSN: 1359-4311

第 14 条，共 15 条

标题: Performance analysis of a novel compact air-air heat exchanger for aircraft gas turbine engine using LMTD method

作者: Li, HW (Li, Haiwang); Huang, HR (Huang, Haoran); Xu, GQ (Xu, Guoqiang); Wen, J (Wen, Jie); Wu, HW (Wu, Hongwei)

来源出版物: APPLIED THERMAL ENGINEERING 卷: 116 页: 445-455 DOI: 10.1016/j.applthermaleng.2017.01.003 出版年: APR 2017

Web of Science 核心合集中的 "被引频次": 0

被引频次合计: 0

入藏号: WOS:000397550300040

地址: [Li, Haiwang; Xu, Guoqiang; Wen, Jie] Beihang Univ, Natl Key Lab Sci & Technol Aero Engines Aerotherm, Beijing 100191, Peoples R China.

[Li, Haiwang; Xu, Guoqiang; Wen, Jie] Beihang Univ, Collaborat Innovat Colter Adv AeroEngine China, Beijing 100191, Peoples R China.

[Li, Haiwang; Huang, Haoran] Beihang Univ, Aircraft Engine Integrated Syst Safety Beijing Ke, Beijing 100191, Peoples R China.

[Wu, Hongwei] Northumbria Univ, Fac Engn & Environm, Dept Mech & Construct Engn, Newcastle Upon Tyne NE1 8ST, Tyne & Wear, England.

通讯作者地址: Wen, J (通讯作者),Beihang Univ, Natl Key Lab Sci & Technol Aero Engines Aerotherm, Beijing 100191, Peoples R China.

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APPLIED THERMAL ENGINEERING

影响因子

3.444 3.684

2016 5年

JCR 类别	类别中的排序	JCR 分区
ENERGY & FUELS	29/92	Q2
ENGINEERING, MECHANICAL	12/130	Q1
MECHANICS	10/133	Q1
THERMODYNAMICS	8/58	Q1

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研究方向

Thermodynamics
Energy & Fuels
Engineering
Mechanics

第 15 条，共 15 条

标题: A Monte Carlo simulation and effective thermal conductivity calculation for unidirectional fiber reinforced CMC

作者: Yan, DF (Yan, Dongfang); Wen, J (Wen, Jie); Xu, GQ (Xu, Guoqiang)

来源出版物: APPLIED THERMAL ENGINEERING 卷: 94 页: 827-835 DOI: 10.1016/j.applthermaleng.2015.09.098 出版年: FEB 5 2016

Web of Science 核心合集中的 "被引频次": 6

被引频次合计: 6

入藏号: WOS:000370770300083

地址: [Yan, Dongfang; Wen, Jie; Xu, Guoqiang] Beihang Univ, Sch Energy & Power Engn, Beijing 100191, Peoples R China.

通讯作者地址: Wen, J (通讯作者),Beihang Univ, Sch Energy & Power Engn, Beijing 100191, Peoples R China.

电子邮件地址: wenjie@buaa.edu.cn

IDS 号: DE6UY

ISSN: 1359-4311

北京航空航天大學

SCIE 来源期刊检索证明

经检索 Clarivate Analytics 官方网站的 Science Citation Index Expanded（SCIE）来源期刊列表（http://ip-science.thomsonreuters.com/cgi-bin/jrnlst/jloptions.cgi?PC=D），下列 1 种期刊为 SCIE 来源期刊：

1.JOURNAL OF CHEMICAL AND ENGINEERING DATA

Monthly ISSN: 0021-9568

AMER CHEMICAL SOC, 1155 16TH ST, NW, WASHINGTON, USA, DC, 20036

检索时间为 2018 年 5 月 15 日。

特此证明！

证明人（签字）：

证明单位（盖章）：北京航空航天大学图书馆

二〇一八年五月十五日

北京航空航天大學 图书馆 检索专用章

Journal of chemical & engineering data

Article

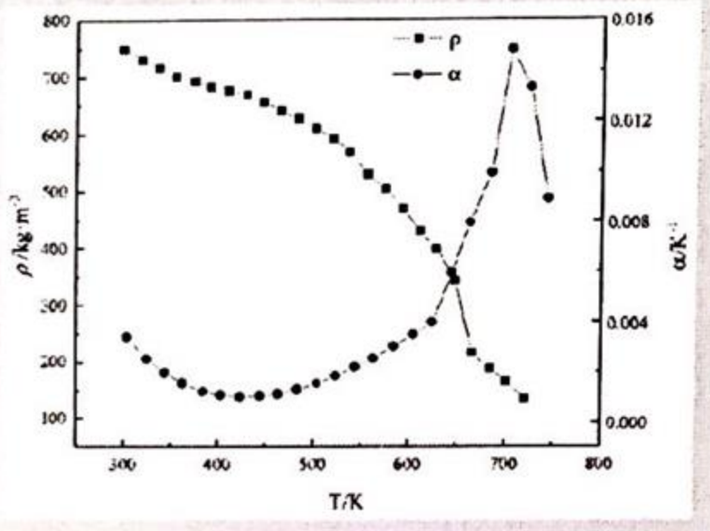
pubs.acs.org/jced

Density Measurements of Propellant EHF-TU at (3 to 7) MPa Supercritical Pressures

Jie Wen, Nan Zhang, Yanchen Fu,* Guoqiang Xu, Haoran Huang, and Xiaojun Yan

National Key Laboratory of Science and Technology on Aero-Engine Aero-Thermodynamics, School of Energy and Power Engineering, Beihang University, Beijing, 100191, China

ABSTRACT: Endothermic Hydrocarbon Fuel-Tianjin University (EHF-TU) is one advanced propellant and fractionated from RP-3 extensively used in China. The density of propellant EHF-TU at supercritical pressures is measured using the flow conservation method. The measurement covers temperatures from (303 to 765) K and pressures of (3 to 7) MPa using three tubes with different sizes, and the density varies from (759 to 134) kg·m^{-3}. The *n*-decane is used for calibration, and the relative uncertainty of density measurement is 1.1%. A series of measures were adopted to improve the measurement accuracy including flexible sizes of test tubes, the lumped parameter method, and the advanced data process. The results indicate that density decreases with the decline of temperature and pressure. Dramatic variation of density occurs in the pseudocritical region at 3 MPa pressure. Density data is fitted using polynomials, and the average absolute deviation (AAD) between the experimental data and the fitted data is 0.7%. Additionally, the volumetric thermal expansion coefficient of EHF-TU is calculated using the polynomials.



1. INTRODUCTION

In recent decades, the flight speed of aircrafts has experienced rapid development from subsonic to supersonic to hypersonic. With the development of engines, the turbine heat load will rapidly increase due to the increase in turbine inlet temperature. The turbine inlet temperature was 1100 K in the 1950s and is expected to reach 2300 K by 2020.[1] To meet the needs of the turbine inlet temperature and pressure ratio's improvement, the cooled cooling air (CCA) technology is proposed. The CCA technology is to improve the cooling air's quality with the smallest technical risk and weight, by using the own fuel as a cold source through heat exchangers installed in aero engines.[2] There are currently many mainstream propellants like JP-8 and Chinese RP-3. New and advanced propellants are still being studied. When the multicomponent hydrocarbon fuel absorbs heat, the temperature rises and eventually is beyond the critical value. In this process, the fluid exhibits a series of special characteristics, especially the dramatic variations in thermal properties. As thermal properties are researched on the basis of flow and heat transfer, these variations could lead to peculiar phenomena at supercritical pressures. The database of fluid thermal properties mainly includes density,[3] specific heat,[4−7] dynamic viscosity,[8−10] thermal conductivity,[11−13] vapor pressure,[14−16] and critical properties.[17] Accurate measurement of thermal properties is needed to perform numerical simulations and shorten the design cycle of heat-exchangers in aero engines.

Density is an important property parameter in scientific and engineering applications. The measurement method of the density is divided into two categories: one is the direct measurement based on the relationship of quality and volume $\rho = \frac{m}{V}$, and the other one is the indirect measurement based on the relationship of density and other physical quantities.[20−22,30] The densities of pure substances[18−20] and mixtures[3,21−29] have been investigated by many researchers. Dai et al.[20,21] measured the density of the mixture of CO_2 and styrene at 313/323/333/343 K with a maximum pressure of 34.47 MPa. Yun et al.[22] measured the density of the binary mixture of ethane and its cosolvent. The experimental temperature remained constant at 308.2 K, and the pressure varied from (4.98 to 10.57) MPa. Bruno et al.[30] tested the hydrocarbon fuel JP-10 density using the SVM3000 and DSA5000 instruments and formed a technical report. The maximum positive and negative errors are 0.04 and −0.22%, respectively. Yang et al.[31] measured the hydrocarbon fuel temperature from (283 to 950) K and pressure of (3 to 4) MPa using a gamma densitometer.

An indirect measurement like the vibration method can measure the density of fluid under high pressure but cannot be used under high temperature conditions. In a word, these methods mostly are suitable for low temperature, high pressure or high temperature, low pressure conditions of density measurement. In this work, a novel method to measure the density under high pressure and temperature conditions was proposed and updated. During the experiments, the operating pressures were at supercritical status and varied from (3 to 7) MPa, and the fluid temperature was varied from (303 to 765) K.

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DOI: 10.1021/acs.jced.7b01097
J. Chem. Eng. Data XXXX, XXX, XXX−XXX

北京航空航天大學

文献收录、影响因子及 JCR 分区检索证明

作者姓名：闻洁 (Wen, Jie)

经检索“网络版科学引文索引（SCI-EXPANDED）”数据库，该作者发表的论文（2015 年-2016 年），被收录 4 篇。

检索结果见附件，共 4 页。

检索时间为 2018 年 5 月 20 日。

特此证明！

证明人（签字）：

证明单位（盖章）：北京航空航天大学图书馆

北京航空航天大学 图书馆 检索专用章

二〇一八年五月二十日

附件：

第 1 条，共 4 条

标题: Theoretically and numerically investigation about the novel evaluating standard for convective heat transfer enhancement based on the entransy theory

作者: Yu, HD (Yu, Haidong)[1] ; Wen, J (Wen, Jie)[1] ; Xu, GG (Xu, Guogiang)[1] ; Li, HW (Li, Haiwang)[1]

来源出版物: INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER

卷: 98 页: 183-192 **DOI:** 10.1016/j.ijheatmasstransfer.2016.02.081 出版年: JUL 2016

入藏号: 000375360600019

语种: English

文献类型: Article

地址: [1] Beihang Univ, Collaborat Innovat Ctr Adv Aeroengine China, Natl Key Lab Sci & Technol Aero Engines Aerotherm, Beijing 100191, Peoples R China

通讯作者地址: Li, HW (通讯作者)

Beihang Univ, Collaborat Innovat Ctr Adv Aeroengine China, Natl Key Lab Sci & Technol Aero Engines Aerotherm, Beijing 100191, Peoples R China.

电子邮件地址: 09620@buaa.edu.cn

ISSN: 0017-9310

eISSN: 1879-2189

来源出版物页码计数: 9

Web of Science 核心合集中的 "被引频次": 2

影响因子

3.458

2016

JCR® 类别	*类别中的排序*	*JCR 分区*
ENGINEERING, MECHANICAL	**11/130**	**Q1**
MECHANICS	**9/133**	**Q1**
THERMODYNAMICS	**7/58**	**Q1**

第 2 条，共 4 条

标题: Experimental measurements of thermal conductivity of hydrocarbon fuels by a steady and kinetic method

作者: Jia, ZX (Jia Zhouxia)[1] ; Xu, GQ (Xu Guoqiang)[1] ; Deng, HW (Deng Hongwu)[1] ; Wen, J (Wen Jie)[1] ; Fu, YC (Fu Yanchen)[1]

来源出版物: JOURNAL OF THERMAL ANALYSIS AND CALORIMETRY

卷: 123 期: 1 页: 891-898 **DOI:** 10.1007/s10973-015-4920-6 出版年: JAN 2016

入藏号: WOS: 000368187700086

语种: English

文献类型: Article

地址: [1] Beijing Univ Aeronaut & Astronaut, Collaborat Innovat Ctr Adv Aeroengine, Sch Energy & Power Engn, Natl Key Lab Sci & Technol Aeroengine Aerothermod, Beijing 100191, Peoples R China

通讯作者地址: Jia, ZX (通讯作者)

Beijing Univ Aeronaut & Astronaut, Collaborat Innovat Ctr Adv Aeroengine, Sch Energy & Power Engn, Natl Key Lab Sci & Technol Aeroengine Aerothermod, Beijing 100191, Peoples R China.

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ISSN: 1388-6150

eISSN: 1588-2926

来源出版物页码计数: 8

影响因子

1.953

2016

JCR® 类别	*类别中的排序*	*JCR 分区*
CHEMISTRY, ANALYTICAL	**41/76**	**Q3**
CHEMISTRY, PHYSICAL	**85/146**	**Q3**
THERMODYNAMICS	**20/58**	**Q2**

第 3 条，共 4 条

标题: Thermal-conductivity measurements of aviation kerosene RP-3 from (285 to 513) K at sub-and supercritical pressures

作者: Xu, GQ (Xu, G. Q.)[1] ; Jia, ZX (Jia, Z. X.)[1] ; Wen, J (Wen, J.)[1] ; Deng, HW (Deng, H. W.)[1] ; Fu, YC (Fu, Y. C.)[1]

来源出版物: INTERNATIONAL JOURNAL OF THERMOPHYSICS
卷:35 期: 4 页: 620-632 **DOI:** DOI: 10.1007/s10765-015-1840-4 出版年: APR 2015
入藏号: WOS: 000351385500002
语种: English
文献类型: Article

地址: [1] Beijing Univ Aeronaut & Astronaut, Collaborat Innovat Ctr Adv Aeroengine, Sch Energy & Power Engn, Natl Key Lab Sci & Technol Aeroengine Aerothermod, Beijing 100191, Peoples R China
通讯作者地址: Jia, ZX (通讯作者)
Beijing Univ Aeronaut & Astronaut, Collaborat Innovat Ctr Adv Aeroengine, Sch Energy & Power Engn, Natl Key Lab Sci & Technol Aeroengine Aerothermod, Beijing 100191, Peoples R China.
电子邮件地址: zhouxia_jia@buaa.edu.cn

ISSN: 0195-928X
eISSN: 1572-9567

来源出版物页码计数:13

Web of Science 核心合集中的 "被引频次": 9

影响因子

0.745

2016

JCR® 类别	*类别中的排序*	*JCR 分区*
CHEMISTRY, PHYSICAL	131/146	Q4
MECHANICS	116/133	Q4
PHYSICS, APPLIED	130/148	Q4
THERMODYNAMICS	52/58	Q4

第 4 条，共 4 条

标题: Experimental investigation of flow and heat transfer characteristics in double-laminated sintered woven wire mesh

作者: Ma, JD (Ma, Jiandong); Lv, P (Lv, Pin); Luo, X (Luo, Xiang)[1]; Liu, YP (Liu, Yangpeng); Li, HW (Li, Haiwang); Wen, J (Wen, Jie)

来源出版物: APPLIED THERMAL ENGINEERING

卷:95 页:53-61 **DOI:** 10.1016/j.applthermaleng.2015.11.015 出版年: FEB 25 2016

入藏号: WOS: 000370455900007

语种: English

文献类型: Article

地址: [1] Beihang Univ, Natl Key Lab Sci & Technol Aeroengine Aerotherm, Beijing 100191, Peoples R China

[2] Beihang Univ, Collaborat Innovat Ctr Adv Aeroengine, Beijing 100191, Peoples R China

通讯作者地址: Luo, X (通讯作者)

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电子邮件地址: xiang.luo@buaa.edu.cn

ISSN: 1359-4311

来源出版物页码计数: 9

Web of Science 核心合集中的 "被引频次": 1

影响因子

3.444

2016

JCR® 类别	*类别中的排序*	*JCR 分区*
ENERGY & FUELS	**29/92**	**Q2**
ENGINEERING, MECHANICAL	**12/130**	**Q1**
MECHANICS	**10/133**	**Q1**
THERMODYNAMICS	**8/58**	**Q1**

北京航空航天大學
LIBRARY
BEIHANG UNIVERSITY 圖書館

文献收录检索证明

作者姓名：闻洁（Wen，Jie）

经检索“网络版工程索引（EI Compendex）”数据库，该作者发表的论文（2000 年-2017 年），被收录 8 篇。

检索结果见附件，共 5 页。

检索时间为 2017 年 5 月 16 日。

特此证明！

证明人（签字）：

证明单位（盖章）：北京航空航天大学图书馆

二０一七年五月十六日

北京航空航天大學 圖書館 检索专用章

1. Experimental study on effect of unsmoothed blade on cascade exit loss distribution

Accession number: 2000045125268
Authors: Wen, Jie ; Zhao, Guilin
Corr. author affiliation: Beijing Univ of Aeronautics and Astronautics, China
Source title: Hangkong Dongli Xuebao/Journal of Aerospace Power
Abbreviated source title: Hangkong Dongli Xuebao
Volume: 15
Issue: 1
Issue date: Jan 2000
Publication year: 2000
Pages: 44-46
Language: Chinese
ISSN: 10008055
CODEN: HDOXE5
Document type: Journal article (JA)
Publisher: BUAA Press, China
Database: Compendex

Data Provider: Engineering Village

2. Isobaric specific heat capacity measurements of n-decane at super-critical pressures

Accession number: 20171403538539
Authors: Zhang, Xiao-Zhe (1, 2); Wen, Jie (1); Xu, Guo-Qiang (1); Zhang, Nan (1); Jia, Zhou-Xia (1)
Author affiliation: (1) National Key Laboratory of Science and Technology on Aero-Engine Aero-Thermodynamics, School of Energy and Power Engineering Beihang University, Beijing; 100191, China; (2) Shenyang Engine Design and Research Institude, Shenyang; 110015, China
Source title: Tuijin Jishu/Journal of Propulsion Technology
Abbreviated source title: Tuijin Jishu
Volume: 38
Issue: 1
Issue date: January 1, 2017
Publication year: 2017
Pages: 214-219
Language: Chinese
ISSN: 10014055
CODEN: TUJIEG
Document type: Journal article (JA)
Publisher: Journal of Propulsion Technology
Abstract: In order to measure the isobaric specific heat capacity(cp)of hydrocarbon fuels at high temperature and high pressure conditions accurately, a new experimental method and device were developed based on the relation between cpand enthalpy. The influence of heat loss on the measurement accuracy can be reduced significantly based on this method. The relative uncertainty of the method for isobaric heat capacity measurements is 3.7% in the temperature range of 300K to 800K according to the uncertainty analysis. Validation experiments were conducted by measuring the cpof n-decane(3MPa and 5MPa, 312~797K). The test results indicate that the average absolute deviation(AAD)is below 1.8%, and the maximum absolute deviation(MAD)is 4.3%, excluding the pseudo-critical region where the MAD is 7.6% due to sharp variations of isobaric heat capacity. Test results are tabulated in the temperature range of 675K to 797K on 3MPa and 5MPa, which extended the data range of existing data. This method can be also applied to other fluids in similar operating conditions.
Number of references: 10
Main heading: Specific heat
Controlled terms: Measurements - Paraffins - Thermodynamic properties - Uncertainty analysis
Uncontrolled terms: Average absolute deviation - High temperature and high pressure - Isobaric Specific Heat Capacity - Maximum absolute deviations - N-decane - New experimental method - Super-critical - Super-critical pressures
Classification code: 641.1 Thermodynamics
Thermodynamics
- 922.1 Probability Theory
Probability Theory
Numerical data indexing: Percentage 1.80e+00%, Percentage 3.70e+00%, Percentage 4.30e+00%, Percentage 7.60e+00%, Pressure 3.00e+06Pa, Pressure 5.00e+06Pa, Temperature 3.00e+02K to 8.00e+02K, Temperature 3.12e+02K to 7.97e+02K, Temperature 6.75e+02K to 7.97e+02K

DOI: 10.13675/j.cnki.tjjs.2017.01.028
Compendex references: YES
Database: Compendex

Data Provider: Engineering Village

3. Effects of non-smooth blades on the cascade exit streamwise vortex systems

Accession number: 2001376647926
Authors: Wen, J. ; Zhao, G.-L. ; He, L.-D. ; Peng, H.
Corr. author affiliation: 4th Dept., Beijing Univ. of Aero./Astronautics, Beijing 100083, China
Source title: Hangkong Dongli Xuebao/Journal of Aerospace Power
Abbreviated source title: Hangkong Dongli Xuebao
Volume: 16
Issue: 3
Publication year: 2001
Pages: 283-286
Language: Chinese
ISSN: 10008055
CODEN: HDOXE5
Document type: Journal article (JA)
Publisher: BUAA Press
Abstract: An experimental investigation on the cascades equipped with conventional smooth blades and non-smooth blades was carried out in the low speed plane cascade wind tunnel, so as to study the effects of non-smooth blades on the exit streamwise vortex systems. The experimental results show that the non-smooth blades exert a distinct influence on the exit streamwise vortex systems. The locations of the passage vortex and trailing vortex shift toward the centre of cascade passage, and the intensity of the trailing vortex weakens.
Number of references: 3
Database: Compendex

Data Provider: Engineering Village

4. Studies on infrared camera used in heat transfer experiments

Accession number: 2004078020730
Authors: Wen, Jie (1); Zhao, Guilin (2); Tao, Zhi (1); Peng, Hui (2)
Author affiliation: (1) Sch. of Jet Propulsion, Beijing Univ. of Aero. and Astron., Beijing 100083, China; (2) Inst. of Mech., Chinese Acad. of Sci., Beijing 100080, China
Corresponding author: Wen, J.(wenjie@buaa.edu.cn)
Source title: Beijing Hangkong Hangtian Daxue Xuebao/Journal of Beijing University of Aeronautics and Astronautics
Abbreviated source title: Beijing Hangkong Hangtian Daxue Xuebao
Volume: 29
Issue: 8
Issue date: August 2003
Publication year: 2003
Pages: 700-703
Language: Chinese
ISSN: 10015965
CODEN: BHHDE8
Document type: Journal article (JA)
Publisher: Beijing University of Aeronautics and Astronautics (BUAA)
Abstract: The possibility of using infrared camera in heat transfer experiments was discussed and the various influential factors were analysed, such as the radiation ratio of materials, the roughness of surface and the transmissivity of special materials for infrared ray transmission. The studies indicate that the infrared camera can be used in heat transfer experiments, but need to determine various influential factors according to the special experimental cases.
Abstract type: (Edited Abstract)
Number of references: 3
Main heading: Cameras
Controlled terms: Experiments - Heat transfer - Infrared devices - Infrared imaging - Infrared transmission - Surface roughness
Uncontrolled terms: Influential factors - Infrared camera - Radiation ratio - Thermal characterization
Classification code: 741.3 Optical Devices and Systems

Optical Devices and Systems
- 742.2 Photographic Equipment
Photographic Equipment
Treatment: Experimental (EXP)
Database: Compendex

Data Provider: Engineering Village

5. Experiment of multi-component hydrocarbon fuels RP-3 thermal conductivity

Accession number: 20135217143949
Authors: Zhou, Haipeng (1); Wen, Jie (1); Deng, Hongwu (1); Jia, Zhouxia (1)
Author affiliation: (1) National Key Laboratory on Aero-Engines, Beijing University of Aeronautics and Astronautics, Beijing 100191, China
Corresponding author: Zhou, H.(zhiphappier@163.com)
Source title: Beijing Hangkong Hangtian Daxue Xuebao/Journal of Beijing University of Aeronautics and Astronautics
Abbreviated source title: Beijing Hangkong Hangtian Daxue Xuebao
Volume: 39
Issue: 10
Issue date: 2013
Publication year: 2013
Pages: 1387-1391
Language: Chinese
ISSN: 10015965
CODEN: BHHDE8
Document type: Journal article (JA)
Publisher: Beijing University of Aeronautics and Astronautics (BUAA), 37 Xueyuan Rd., Haidian District, Beijing, 100083, China
Abstract: Based on the classic trasient hot-wire princeple, the experiment apparatus for the measurement of multicomponent hydrocarbon fuel thermal conductivity under high temperature and high pressure was introduced. The calibration results of absolute ethyl alcohol, toluene and high pressure nitrogen show that the maxmum deviation for liquid thermal conductivity is less than 1% and for gas is less than 3%. After that, conductivity of domestic hydrocarbon fuel RP-3 was measured under 298~430 K and 0.1~5 MPa using this apparatus and the results show a good repeatibility. It is of great importance to improve conductivity measuring methods for fluid under super-critical pressure.
Number of references: 14
Main heading: Thermal conductivity of gases
Controlled terms: Experiments - Fuels - Hydrocarbons - Nitrogen - Thermal conductivity - Thermodynamic properties - Wire
Uncontrolled terms: High pressure nitrogen - High temperature and high pressure - Hydrocarbon fuel - Measuring method - Multicomponents - RP-3 - Super-critical pressures - Transient hot-wire
Classification code: 804 Chemical Products Generally
Chemical Products Generally
- 803 Chemical Agents and Basic Industrial Chemicals
Chemical Agents and Basic Industrial Chemicals
- 641.1 Thermodynamics
Thermodynamics
- 901.3 Engineering Research
Engineering Research
- 535.2 Metal Forming
Metal Forming
- 523 Liquid Fuels
Liquid Fuels
- 522 Gas Fuels
Gas Fuels
- 524 Solid Fuels
Solid Fuels
Numerical data indexing: Percentage 1.00e+00%, Percentage 3.00e+00%, Pressure 1.00e+05Pa to 5.00e+06Pa, Temperature 2.98e+02K to 4.30e+02K
Database: Compendex

Data Provider: Engineering Village

6. Experimental study in natural convection heat transfer enhancement

Accession number: 20081611206890
Authors: Wen, Jie (1); Yu, Zhao-Ji (1); Wu, Hong (1)
Author affiliation: (1) National Key Laboratory on Aero-Engines, Beijing University of Aeronautics and Astronautics, Beijing 100083, China
Corresponding author: Wen, J.
Source title: Hangkong Dongli Xuebao/Journal of Aerospace Power
Abbreviated source title: Hangkong Dongli Xuebao
Volume: 23
Issue: 3
Issue date: March 2008
Publication year: 2008
Pages: 410-414
Language: Chinese
ISSN: 10008055
CODEN: HDOXE5
Document type: Journal article (JA)
Publisher: BUAA Press, Xue-Yuan Road No.37, Beijing, 100083, China
Abstract: This paper focuses on study of heat transfer enhancement in natural convection along upright board. Comparing the different effects of heat transfer enhancement by using columned turbulent pins, conical turbulent pins, prisms, pyramids, and LVG (longitudinal vortex generator) arrays, the results show that the performance of LVG in heat transfer enhancement is better than others during simplex pins tests. Furthermore, the mixed configuration of columned turbulent pins and LVG has the best performance in natural convection heat transfer enhancement, which enhances heat transfer by 24.5 percent.
Number of references: 5
Main heading: Heat transfer
Controlled terms: Natural convection - Propulsion
Uncontrolled terms: Longitudinal vortex generator - Pyramid - Turbulent pins
Classification code: 641.2 Heat Transfer
Heat Transfer
- 653.1 Aircraft Engines, General
Aircraft Engines, General
Numerical data indexing: Percentage 2.45e+01%
Treatment: Applications (APP); Experimental (EXP)
Database: Compendex

Data Provider: Engineering Village

7. Numerical simulation on lateral jet interaction in supersonic flows

Accession number: 2005309265860
Authors: Wen, Jie (1); Zhao, Guilin (2); Hu, Liang (2); Peng, Hui (2)
Author affiliation: (1) School of Jet Propulsion, Beijing University of Aeronautics and Astronautics, Beijing 100083, China; (2) Institute of Mechanics, Chinese Academy of Sciences, Beijing 100080, China
Corresponding author: Wen, J.(wenjie@buaa.edu.cn)
Source title: Beijing Hangkong Hangtian Daxue Xuebao/Journal of Beijing University of Aeronautics and Astronautics
Abbreviated source title: Beijing Hangkong Hangtian Daxue Xuebao
Volume: 31
Issue: 6
Issue date: June 2005
Publication year: 2005
Pages: 690-695
Language: Chinese
ISSN: 10015965
CODEN: BHHDE8
Document type: Journal article (JA)
Publisher: Beijing University of Aeronautics and Astronautics (BUAA)
Abstract: It was validated that Fluent can be used in numerical simulation on lateral jet interaction by comparing with the experimental results. Using Fluent, the lateral jet characteristics at different jet pressures and different angles of attack in supersonic flows is numerically investigated. The results indicate that in supersonic flows, with increasing of jet pressures, the high pressure region before lateral jet enlarged, and the wraparound effect strengthened. In the cases of angles of attack, comparing to windward side jet, the high pressure region before the leeward side jet enlarged, the jet wraparound effect in the region of leeward side moved forward, and the control of leeward side jet was more effective. The affected regions of wraparound effect is confined

in regions from 0° to 90° on missile surface.
Number of references: 9
Main heading: Jets
Controlled terms: Computer simulation - Flow interactions - Supersonic flow
Uncontrolled terms: Jet pressures - Lateral jet interaction - Numerical simulation - Wraparound effect
Classification code: 631.1 Fluid Flow, General
Fluid Flow, General
- 723.5 Computer Applications
Computer Applications
Treatment: Applications (APP)
Database: Compendex

Data Provider: Engineering Village

8. Study of heat transfer characteristics of different cooling configurations inside a typical low pressure turbine blade

Accession number: 2005399378727
Authors: Zhang, Li-Min (1); Wen, Jie (1); Ding, Shui-Ting (1); Tao, Zhi (1); Xu, Guo-Qiang (1)
Author affiliation: (1) Laboratory of Aircraft Engine, Beijing University of Aeronautics and Astronautics, Beijing 100083, China
Corresponding author: Zhang, L.-M.
Source title: Hangkong Dongli Xuebao/Journal of Aerospace Power
Abbreviated source title: Hangkong Dongli Xuebao
Volume: 20
Issue: 4
Issue date: August 2005
Publication year: 2005
Pages: 668-672
Language: Chinese
ISSN: 10008055
CODEN: HDOXE5
Document type: Journal article (JA)
Publisher: BUAA Press
Abstract: Numerical simulation and experiment were carried out to study the characteristics of different cooling configurations in a typical low pressure turbine blade. Numerical simulations were performed to investigate the heat transfer of original blade and the improved blade. The numerical results show a good agreement with the experimental ones. Compared to the original blade, the improved blade enhanced the heat transfer effectiveness about 7.8%. The research results indicate that the configuration improving the inner passage not only reinforces the performance of heat transfer, but also improves temperature distribution and avoids superheated regions.
Number of references: 4
Main heading: Gas turbines
Controlled terms: Computational fluid dynamics - Computer simulation - Cooling - Fins (heat exchange) - Heat transfer - Modification - Pressure - Temperature distribution - Turbomachine blades
Uncontrolled terms: Cooling configuration - Mended configuration - Nusselt number ratio - Pin fin array
Classification code: 612.3 Gas Turbines and Engines
Gas Turbines and Engines
- 616.1 Heat Exchange Equipment and Components
Heat Exchange Equipment and Components
- 641.1 Thermodynamics
Thermodynamics
- 641.2 Heat Transfer
Heat Transfer
- 723.5 Computer Applications
Computer Applications
- 931.1 Mechanics
Mechanics
Numerical data indexing: Percentage 7.80e+00%
Treatment: Applications (APP); Experimental (EXP)
Database: Compendex

Data Provider: Engineering Village

北京航空航天大學

中文核心期刊检索证明

经检索《中文核心期刊要目总览（2014 年版）》（朱强、何峻、蔡蓉华主编，北京大学出版社，ISBN: 978-7-301-26189-7），下列 2 种期刊为核心期刊：

1.【期刊名称】暖通空调
【ISSN】1002-8501
【核心期刊版次】1992/1996/2000/2004/2008/2011/2014

2.【期刊名称】航空动力学报
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【核心期刊版次】1992/1996/2000/2004/2008/2011/2014

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证明人（签字）：周晓

证明单位（盖章）：北京航空航天大学图书馆

二〇一八年五月十七日

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超临界压力航空煤油 RP-3 在竖直微细管内的对流换热实验

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(北京航空航天大学 能源与动力工程学院
航空发动机气动热力国家级重点实验室,北京 100191)

摘 要:以实验方式对超临界压力 RP-3 在内径为 1.09 mm 微细管内的对流换热进行了研究,剖析了系统压力、加热热流密度、流动方向及浮升力这些因素对对流换热的影响。实验中热流密度控制为 180～460 kW/m^2,系统进口压力变化范围为 3～5 MPa,进口雷诺数在 3200～10200 范围内变化。结果表明:对于向下流动,在实验段入口处浮升力对换热产生了恶化作用,热流密度越大,恶化作用越强;系统压力主要是通过影响流体热物性对对流换热产生影响;不同流动方向对对流换热的影响十分显著,整体上向下流动换热得到强化,向上流动换热得到恶化。

关 键 词:超临界;航空煤油;微细管;对流换热;浮升力

中图分类号:V312 文献标志码:A

Experiment on convective heat transfer of aviation kerosene RP-3 in vertical micro-tube at supercritical pressure

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School of Energy and Power Engineering,
Beijing University of Aeronautics and Astronautics, Beijing 100191, China)

Abstract: Convective heat transfer of supercritical China aviation fuel RP-3 in vertical micro-tube (inner diameter of 1.09 mm) was experimentally investigated. Influences of system pressure, heat flux, flow direction and buoyancy on heat transfer were analyzed. Wall heat fluxes (180 − 460 kW/m^2), system import pressure (3 − 5 MPa) and inlet Reynolds number (3200−10200) were maintained in experiments. The result showed that the buoyancy force deteriorated the heat transfer of downward flow in the entrance of test section; system pressure affected the convective heat transfer mainly by the impact of fluid thermal properties; effects of different flow directions on convection heat transfer were very significant. Overall heat transfer was strengthened for downward flow and decreased for upward flow.

Key words: supercritical; aviation kerosene; micro-tube; convective heat transfer; buoyancy

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作者简介:赵伟(1990－),男,硕士生,主要从事超临界流体换热及发动机热防护研究。

引用格式:赵伟,闻洁,付衍琛,等. 超临界压力航空煤油 RP-3 在竖直微细管内的对流换热实验[J]. 航空动力学报,2018,33(3):620-627. ZHAO Wei, WEN Jie, FU Yanchen, et al. Experiment on convective heat transfer of aviation kerosene RP-3 in vertical micro-tube at supercritical pressure[J]. Journal of Aerospace Power, 2018, 33(3): 620-627.

全热换热器计算方法研究

北京航空航天大学 闻 洁☆ 李禄明 徐国强 邓宏武

摘要 分析了空调用全热换热器中流体的传热传质过程，给出了综合换热系数的计算式，介绍了全热换热器的设计计算方法和性能评价参数，通过实验验证了该方法的可靠性。

关键词 全热换热器 传热传质 湿球温度 综合换热系数

Calculation method of total heat exchangers

By Wen Jie★, Li Luming, Xu Guoqiang and Deng Hongwu

Abstract Analyses heat and mass transfer processes of fluids in the total heat exchanger used in air conditioning systems, obtains the calculation formula of the integrated heat transfer coefficient. Presents the design and calculation method and performance evaluation parameters for the total heat exchanger. The result of validation by an experiment is satisfactory.

Keywords total heat exchanger, heat and mass transfer, wet-bulb temperature, integrated heat transfer coefficient

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0 引言

空调能耗在国民经济总能耗中占有相当大的比例，更严重的问题是空调系统不能完全满足人们的舒适性要求。空调的任务是调节室内温度、湿度和实现室内外空气的交换，但是由于能耗的原因，传统的空调系统对新风量的重视程度不够。自上世纪70年代能源危机以来，为了节约能源，建筑物围护结构气密性提高，墙体保温得到改善，空调的新风量也随之下降，导致室内污染物浓度增大；同时人造挥发性装饰材料以及各种电器的大量使用，使室内空气质量(indoor air quality，IAQ)问题日益突出。这不但影响人体健康，而且显著影响室内人员的工作效率[1]。

用于空调回风末端具有节能作用的全热回收装置，采用热回收技术，利用经特殊材料制作的全热换热器进行新风和排风之间的热湿交换，预先调节空气质量，解决了空调系统能耗过大与室内空气质量降低间的矛盾，工程应用前景非常广阔。然而对于全热换热器的研究，国内处于刚刚起步的阶段，大部分仅仅停留在对全热换热器经济性的分析以及结构形式的探索上，而且建立的数学模型过于简单，并不能真实反映全热换热器的工作原理。寻找一种全新的全热换热器设计方案用以指导工程应用已迫在眉睫。

1 全热换热器的基本结构及工作原理

空调用全热换热器有两种基本结构，一种是静止型，另外一种是旋转型。两者的主要换热材料都是经过特殊处理过的材料，都具有较好的透湿传热特性。本文研究对象为静止型全热换热器，结构如图1所示。它的芯体是一种表面式交换器，是由经过特殊化学处理，具有吸湿、透湿、耐湿和不透气特点的纤维质平板与波纹板交替排列而成，相邻两块波纹板的叠放应使波纹互相垂直，从而使两股空气流直接通过交换器芯体进行热湿交换[2]。

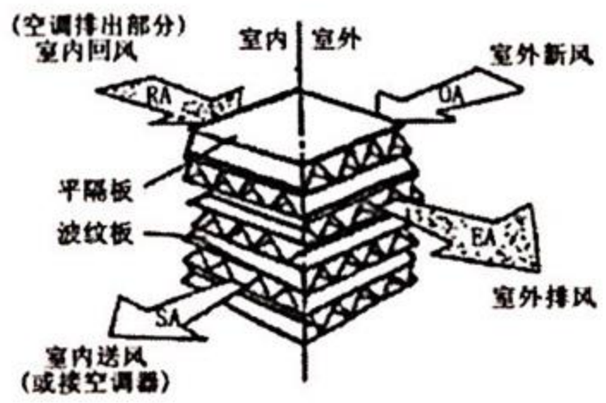

图1 全热换热器工作原理

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二次修回：2008－12－31

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文献引用检索证明

作者姓名：闻洁 (Wen, Jie)

经检索“Web of Science 引文索引数据库”，该作者发表的 15 篇论文（2016 年-2018 年），总被引次数 17 次，他引次数 11 次。(所有引用只计算被 SCIE/SSCI/CPCI-S/CPCI-SSH 收录的论文进行的引用)

（他引定义：引用文献作者中不包含被引文献任意作者的引用）

检索结果见附件，共 4 页。

检索时间为 2018 年 5 月 15 日。

特此证明！

证明人（签字）：

证明单位（盖章）：北京航空航天大学图书馆

检索专用章

二〇一八年五月十五日

附件：

序号	标题、作者、来源出版物	Web of Science 核心合集中总被引次数	Web of Science 核心合集中他引次数
1	标题：Distributed collaborative probabilistic design of multi-failure structure with fluid-structure interaction using fuzzy neural network of regression 作者: Song, LK (Song, Lu-Kai); Wen, J (Wen, Jie); Fei, CW (Fei, Cheng-Wei); Bai, GC (Bai, Guang-Chen) 来源出版物：MECHANICAL SYSTEMS AND SIGNAL PROCESSING 卷：104 页：72-86 DOI: 10.1016/j.ymssp.2017.09.039 出版年: MAY 1 2018	0	0
2	标题: Convective heat transfer of a rotating multi-stage cavity with axial throughflow 作者: Quan, YK (Quan, Yongkai); Han, D (Han, Di); Xu, GQ (Xu, Guoqiang); Wen, J (Wen, Jie); Luo, X (Luo, Xiang) 来源出版物: INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER 卷：119 页：117-127 DOI: 10.1016/j.ijheatmasstransfer.2017.11.110 出版年: APR 2018	0	0
3	标题: Thermodynamic and economic analysis of zeotropic mixtures as working fluids in low temperature organic Rankine cycles 作者: Dong, BS (Dong, Bensi); Xu, GQ (Xu, Guoqiang); Li, TT (Li, Tingting); Quan, YK (Quan, Yongkai); Wen, J (Wen, Jie) 来源出版物: APPLIED THERMAL ENGINEERING 卷: 132 页: 545-553 DOI: 10.1016/j.applthermaleng.2017.12.083 出版年: MAR 5 2018	1	1
4	标题: Numerical prediction of velocity coefficient for a radial-inflow turbine stator using R123 as working fluid 作者: Dong, BS (Dong, Bensi); Xu, GQ (Xu, Guoqiang); Li, TT (Li, Tingting); Quan, YK (Quan, Yongkai); Zhai, LJ (Zhai, Lijing); Wen, J (Wen, Jie) 来源出版物: APPLIED THERMAL ENGINEERING 卷: 130 页: 1256-1265 DOI: 10.1016/j.applthermaleng.2017.11.063 出版年: FEB 5 2018	0	0

5	标题: Thermal oxidation coking of aviation kerosene RP-3 at supercritical pressure in helical tubes 作者: Fu, YC (Fu, Yanchen); Xu, GQ (Xu, Guoqiang); Wen, J (Wen, Jie); Huang, HR (Huang, Haoran) 来源出版物: APPLIED THERMAL ENGINEERING 卷: 128 页: 1186-1195 DOI: 10.1016/j.applthermaleng.2017.09.101 出版年: JAN 5 2018	0	0
6	标题: An improved modeling for low-grade organic Rankine cycle coupled with optimization design of radial-inflow turbine 作者: Zhai, LJ (Zhai, Lijing); Xu, GQ (Xu, Guoqiang); Wen, J (Wen, Jie); Quan, YK (Quan, Yongkai); Fu, J (Fu, Jian); Wu, HW (Wu, Hongwei); Li, TT (Li, Tingting) 来源出版物: ENERGY CONVERSION AND MANAGEMENT 卷: 153 页: 60-70 DOI: 10.1016/j.enconman.2017.09.063 出版年: DEC 1 2017	0	0
7	标题: Buoyancy effects on heat transfer to supercritical pressure hydrocarbon fuel in a horizontal miniature tube 作者: Wen, J (Wen, Jie); Huang, HR (Huang, Haoran); Jia, ZX (Jia, Zhouxia); Fu, YC (Fu, Yanchen); Xu, GQ (Xu, Guoqiang) 来源出版物: INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER 卷: 115 页: 1173-1181 DOI: 10.1016/j.ijheatmasstransfer.2017.08.116 子辑: B 出版年: DEC 2017	0	0
8	标题: Thermal and hydraulic performance of a compact plate finned tube air-fuel heat exchanger for aero-engine 作者: Wen, J (Wen, Jie); Huang, HR (Huang, Haoran); Li, HW (Li, Haiwang); Xu, GQ (Xu, Guoqiang); Fu, YC (Fu, Yanchen) 来源出版物: APPLIED THERMAL ENGINEERING 卷: 126 页: 920-928 DOI: 10.1016/j.applthermaleng.2017.07.103 出版年: NOV 5 2017	1	1
9	标题: An experimental investigation on heat transfer enhancement of sprayed wire-mesh heat exchangers 作者: Fu, YC (Fu, Yanchen); Wen, J (Wen, Jie); Zhang, CZ (Zhang, Cuizhen) 来源出版物: INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER 卷: 112 页: 699-708 DOI: 10.1016/j.ijheatmasstransfer.2017.05.026 出版年: SEP 2017	2	1

10	标题: Experimental investigation on convective heat transfer of supercritical RP-3 in vertical miniature tubes with various diameters 作者: Fu, YC (Fu, Yanchen); Huang, HR (Huang, Haoran); Wen, J (Wen, Jie); Xu, GQ (Xu, Guoqiang); Zhao, W (Zhao, Wei) 来源出版物: INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER 卷: 112 页: 814-824 DOI: 10.1016/j.ijheatmasstransfer.2017.05.008 出版年: SEP 2017	1	0
11	标题: Heat transfer performance of aviation kerosene RP-3 flowing in a vertical helical tube at supercritical pressure 作者: Wen, J (Wen, Jie); Huang, HR (Huang, Haoran); Fu, YC (Fu, Yanchen); Xu, GQ (Xu, Guoqiang); Zhu, K (Zhu, Kun) 来源出版物: APPLIED THERMAL ENGINEERING 卷: 121 页: 853-862 DOI: 10.1016/j.applthermaleng.2017.04.055 出版年: JUL 5 2017	0	0
12	标题: Surface coking deposition influences on flow and heat transfer of supercritical hydrocarbon fuel in helical tubes 作者: Fu, YC (Fu, Yanchen); Wen, J (Wen, Jie); Tao, Z (Tao, Zhi); Xu, GQ (Xu, Guoqiang); Huang, HR (Huang, Haoran) 来源出版物: EXPERIMENTAL THERMAL AND FLUID SCIENCE 卷: 85 页: 257-265 DOI: 10.1016/j.expthermflusci.2017.03.016 出版年: JUL 2017	2	0
13	标题: Experimental research on convective heat transfer of supercritical hydrocarbon fuel flowing through U-turn tubes 作者: Fu, YC (Fu, Yanchen); Wen, JE (Wen, Jie); Tao, Z (Tao, Zhi); Xu, GQ (Xu, Guoqiang); Huang, HR (Huang, Haoran) 来源出版物: APPLIED THERMAL ENGINEERING 卷: 116 页: 43-55 DOI: 10.1016/j.applthermaleng.2017.01.058 出版年: APR 2017	5	3
14	标题: Performance analysis of a novel compact air-air heat exchanger for aircraft gas turbine engine using LMTD method 作者: Li, HW (Li, Haiwang); Huang, HR (Huang, Haoran); Xu, GQ (Xu, Guoqiang); Wen, J (Wen, Jie); Wu, HW (Wu, Hongwei) 来源出版物: APPLIED THERMAL ENGINEERING 卷: 116 页: 445-455 DOI: 10.1016/j.applthermaleng.2017.01.003 出版年: APR 2017	0	0

15	标题：A Monte Carlo simulation and effective thermal conductivity calculation for unidirectional fiber reinforced CMC 作者：Yan, DF (Yan, Dongfang); Wen, J (Wen, Jie); Xu, GQ (Xu, Guoqiang) 来源出版物：APPLIED THERMAL ENGINEERING 卷：94 页：827-835 DOI：10.1016/j.applthermaleng.2015.09.098 出版年：FEB 5 2016	5	5
合计		17	11

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