储建学院国家奖学金申请材料说明

A – 科技类

1. 论文

需提供一张证明材料及论文原件，均采用黑白双面打印。其中，证明材料的正、反面具体要求见表 1，打印示例图按表中所示，参见附图。论文原件需打印全文，未见刊的打印投稿版本即可。

表 1 论文证明材料相关要求

类别	页面	文字说明	图片证明	导师签字	示例
已见刊	正面	格式：序号. 引用格式+网址. (SCI 分区+影响因子)	论文首页	√	附图-1
	反面	a. 中科院文献情报中心分区； b. 期刊官网影响因子	查询证明		附图-2
已录用	正面	SCI：序号. 作者. 题目. 期刊. (SCI 分区+影响因子) 会议：序号. 姓名-题目-未参会/speaker/poster. (境内/外)	录用通知	√	附图-3 附图-4
	反面	a. 中科院文献情报中心分区； b. 期刊官网影响因子	查询证明		附图-2

注：分区查询参考：http://www.fenqubiao.com（中国科学院文献情报中心期刊分区表）；此网址需连校园网使用，登录账号：upc_office ；账号密码：upchdkjc1831 。

2. 专利

需提供原件及复印件。其中，复印件正面需标明“成果名称、时间、位次”，并由导师签字证明。

3. 科研项目

需提供原件及复印件。其中，复印件正面需标明“级别、项目名称、时间、位次（另注明第一负责人是否为研究生）”，并由导师签字证明。

4. 科技竞赛

需提供原件及复印件。其中，复印件正面需标明“级别、比赛名称、参赛总人数”，并由导师签字证明。

B – 学生工作及社会活动类

1. 学生工作

需提供一张证明材料，并由上级负责人签字证明。打印示例见附图-5。

表 2 学生工作证明材料签字说明

担 任 职 务 类 别	上级负责人
兼职辅导员、研究生会主席、ASME 分会主席、研究生团总支书记、党建中心主席、班长、党（团）支书	辅导员张钦老师
研究生会副主席、研究生会各部（副）部长；党建中心副主席	研究生会主席 党建中心主席
ASME 分会副主席、ASME 分会各部（副）部长	ASME 分会主席
研究生团总支副书记、研究生团总支委员	研究生团总支书记
副班长、班级委员；党（团）支部副书记、党（团）支部委员	班长；党（团）支书

注：a. 由辅导员张钦老师签字的还需加盖院章；

b. ASME 分会（副）主席、各部（副）部长可提供聘书原件作为证明材料。

2. 社会活动

需提供原件及复印件。其中，复印件正面需标明“获奖级别、举办单位、时间、位次（是否为第一负责人）”，并由导师签字证明。

附图：

1. 已见刊论文-正面打印示例：

本人姓名**加粗**

1. Cao X, **Guo D**, Sun W, Zhang P, Ding G, Bian J. Supersonic separation technology for carbon dioxide and hydrogen sulfide removal from natural gas. J Clean Prod 2021; 288:125689. https://doi.org/10.1016/j.jclepro.2020.125689. (SCI 一区 top, IF=11.072)

文字说明

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Supersonic separation technology for carbon dioxide and hydrogen sulfide removal from natural gas

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ABSTRACT

A cleaner approach was proposed for removing CO_2 and H_2S from highly acid natural gas by supersonic separation technology. For this purpose, different structures of Laval nozzles and supersonic swirling separation devices were designed. The mathematical models of gas flow in the nozzle were established, and the supersonic flow characteristics of CH_4–H_2S–CO_2 ternary mixture were accurately predicted by adding the real gas state equation and the transport equation to describe the rotational and irrotational flow field. The effects of nozzle structure, swirl angle of static vanes and inlet parameters on the refrigeration performance of the nozzle and the separation characteristics of the swirl device were systematically investigated. The results show that the average temperature at the nozzle outlet can be as low as 135.2 K under the condition of inlet temperature 293.15 K, inlet pressure 4 MPa and 20 mol % acid gas. It indicates that the refrigeration effect produced by high speed expansion of acid natural gas in the supersonic nozzle can provide a favorable liquefying environment for the acid components, which confirms the feasibility of capturing acid components by supersonic separation device. Better refrigeration performance can be achieved in the nozzle with higher outlet Mach number, but the pressure recovery capacity of the device will be suppressed accordingly. As swirl angle increases from 73.90° to 81.79°, the maximum tangential velocity in the nozzle rises from 119.6 m/s to 212.5 m/s, the separation performance of the swirl device increases, while the pressure and temperature at the same location decrease slightly. However, the increase of swirl intensity will restrict the flow capacity of the separator. For the given supersonic swirling separation device, it shows a good adaptability in separation performance when changing the inlet parameters.

论文首页

1. Introduction

With the development of natural gas resources, the proportion of conventional natural gas is getting lower and lower, and highly acid natural gas has become an important part of the world's natural gas resources gradually. About 13.46% of the world's natural gas or associated gas reserves contain more than 10% hydrogen sulfide, and about 26.9% contain more than 10% carbon dioxide (Muhammad and GadelHak, 2014). It is well known that carbon dioxide has the greatest impact on global warming by abound 64% of the greenhouse effect among these greenhouse gases (CO_2, CH_4, N_2O and CFCs). Moreover, the combustion of fossil fuels accounts for approximately 94% of anthropogenic CO_2 emissions (Hussin and Aroua, 2020; Tawalbeh et al., 2019). The SO_2 released from the combustion of sour gas will also cause adverse environmental problems, as acid rain can seriously affect human health and damage natural environment (Cao and Bian, 2019). In addition, the existence of acid gas in natural gas will also aggravate the corrosion of pipelines and equipment in the process of exploitation, gathering, transportation and treatment, and increase the risk of pipeline accidents such as leakage, resulting in huge economic losses, environmental pollution, and even endanger life safety (Sun et al., 2018). Therefore, the removal of acid gas from natural gas is necessary, and carbon capture and storage (CCS) (de Carvalho Reis et al., 2018) and sulfur recovery technology (Adewale et al., 2016) have been recognized as one of the most promising measures to improve the sustainable development of fossil energy.

At present, more than 30 kinds of natural gas deacidification processes have been developed, such as chemical absorption, physical absorption, physical and chemical absorption and direct oxidation (Zhang et al., 2020a). However, these traditional acid gas removal processes generally suffer from the shortcomings such as

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导师签字

2. 已见刊/录用论文-反面打印示例：

a. 中国科学院文献情报中心期刊分区

文字说明

中国科学院文献情报中心期刊分区表　浏览　检索　批量检索　阈值　公告　升级版　绑定微信　upc_office 退出

期刊全称：	Journal of Cleaner Production		
期刊简称：	J CLEAN PROD	ISSN：	0959-6526
年份：	2021年	综述：	否

	学科名称	分区	Top期刊
小类	ENGINEERING, ENVIRONMENTAL工程：环境	2	-
小类	ENVIRONMENTAL SCIENCES环境科学	2	-
小类	GREEN & SUSTAINABLE SCIENCE & TECHNOLOGY绿色可持续发展技术	2	-
大类	环境科学与生态学	1	是

期刊影响因子				总被引频次		
2018年	2019年	2020年	2018-2020年平均	2019年	2020年	2019年-2020年
6.395	7.246	9.297	7.646	104138	170352	274490

分区证明

b. 期刊官网影响因子

文字说明

IF 证明

3. 已录用论文-正面打印示例：

本人姓名**加粗**

2. Hongyu Lv, **Huigang Ma**. Numerical simulation of flow boiling heat transfer characteristics of R134a/Ethane binary mixture in horizontal micro-tube. International Journal of Refrigeration. (SCI 三区，IF=4.140)

文字说明

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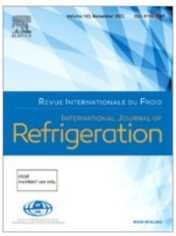
Thank you for publishing your article in International Journal of Refrigeration . Dr. He completed the Rights and Access Form for your article *Numerical simulation of flow boiling heat transfer characteristics of R134a/Ethane binary mixture in horizontal micro-tube* on October 27, 2022.



The Order Summary is attached to this email. A copy of the Order Summary is also sent to all co-authors for whom we have contact details.

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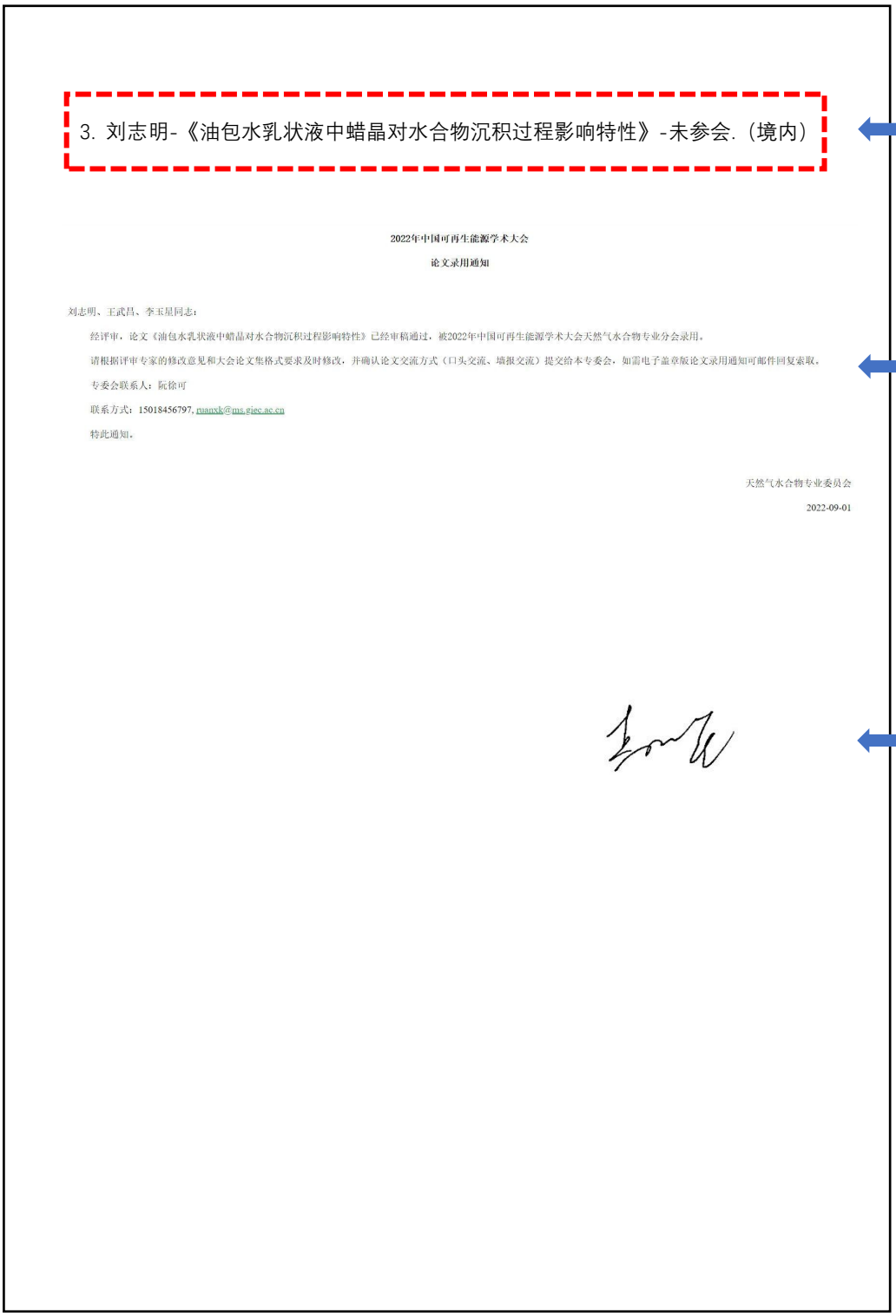
录用证明

导师签字

4. 已录用会议-正面打印示例：



3. 刘志明-《油包水乳状液中蜡晶对水合物沉积过程影响特性》-未参会.（境内）

文字说明

2022年中国可再生能源学术大会

论文录用通知

刘志明、王武昌、李玉星同志：

经评审，论文《油包水乳状液中蜡晶对水合物沉积过程影响特性》已经审稿通过，被2022年中国可再生能源学术大会天然气水合物专业分会录用。

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联系方式：15018456797, ruanxk@ms.giec.ac.cn

特此通知。

天然气水合物专业委员会

2022-09-01

导师签字

5. 学生工作-证明材料打印示例：

储运与建筑工程学院学生干部证明

兹证明，

_____（姓名），___（性别），_____（学号），系中国石油大学（华东）储运与建筑工程学院_____（专业+班级）研究生。在_____年-____年担任_____（干部）一职，聘期____年。

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研究生会/党建中心/研究生团总支/ ASME 分会/
XXX 班/XXXX 党（团）支部

所属类别

詹本芳

负责人签字