

国内统一刊号: CN11-5216/TH 国际标准刊号: ISSN 1672-8823
(2022)京新出报刊增准字第(235)号

邮发代号: 2-647
定价: 450元

电器



2022年中国家用电器技术大会

2022 China Household Electrical Appliances Technical Conference

论文集

2022年10月

增刊

ISSN 1672-8823



9 771672 882225



9 9

聚焦 做好自己的事

(前言)

不得不说，疫情、国际动荡、经济等多重因素作用下，中国家电产业遭遇着40多年发展中最难的外部环境；而国内市场需求端已经进入了主要大家电类产品高普及率以存量市场换新需求为主的周期，大部分市场数据都不好看。这样的時候，作为国民经济的重要产业，家电再次受到了国家的高度重视，各种政策惠顾家电行业。为挖掘内需消费潜力，商务部等13个部门联合发文，倡导各地开展家电“以旧换新”活动，有的地方政策正在落地。

不仅政策因素，还应该看到，社会环境也有帮助或者在倒逼产业的转型升级。物联网、5G、大数据、AI等新技术，催生新产品、新模式和新业态，正在推动生产方式、社会结构和生活方式发生深刻变化，对企业管理、运营、生产组织、研发、物流、服务带来提速增效的机会；健康需求的崛起，为行业拓展出全新的发展赛道；再有，今夏极端天气肆虐全球，让我们更意识到实现双碳目标的重要性，保护地球、减排温室气体的紧迫性，低碳产品的发展潜力。

毋庸置疑的是，中国是全球最大的家电消费市场，即便是普及水平很高的传统大家电，换新需求的量依然是全球之最。而在更新需求中，消费升级成为主流。更令人鼓舞的是，中国市场有最乐于拥抱新产品的消费群体，这成就了智能化新产品、新品类的成长和迭代，也对家电产品技术升级有丰富的潜在要求。再从双循环纬度看，中国家电早已进入了全球几乎所有市场，优势提升。

是的，我们要抓牢社会发展、市场变化传递出的积极信号，以创新谋发展。向着我们的“十四五”发展目标“到2025年，成为全球家电科技创新的引领者”聚焦，做好我们自己的事！

我们看到海尔今年在创新上大幅增加投入；我们看到美的能效1级R290制冷剂空调正式下线；我们看到技术不断迭代的洗地机等创新型新品类成为市场新宠；我们看到洗碗机产品在朝着更适合中国消费习惯的技术发展；我们看到烤箱为留住食品营养的技术突破……不仅这些，还包括技术已经达到一流水平的空调、冰箱、洗衣机产品的不断精进。当然，我们还通过论文看到了大批工程技术人员勤奋而扎实的工作和成果。

2022年中国家用电器技术大会收到来自国内外家电生产企业及研究院所的技术论文532篇。经过专家组严格筛选，428篇论文入选《2022年中国家用电器技术大会论文集》并公开出版发行。

这由一篇篇汇集起来的428篇，研究内容涉及各种家电产品的方方面面，从中展现了我国家电科技工作者、工程技术人员在技术发展和产品创新升级上的思考、实践，或理论上的深入，或方法上的提高，或细节上的打磨。

其中，有25篇论文得到多位评审专家的一致推荐，可称为论文中的标杆，在此不惜笔墨公布作者及题目如下（以递交论文先后为序）：邹伟《扫地机器人滚刷防缠绕技术研究》、郑礼成《旋转式压缩机轴承磨损研究》、王卫红《变频压缩机停机的若干变频器控制策略研究》、高洪波《基于Swin Transformer和CNN模型融合的包装食品目标检测方法研究》、毛百虎《玻璃搁架承载变形的快速计算》、陈新杰《往复式压缩机匹配冰箱系统噪声传递路径贡献分析研究》、周腾《基于LDA_SVM的洗衣机布质感知算法研究》、王凯《用于熨烫产品的蒸汽发生器除垢设计》、王文鹏《洗碗机整机传热过程和能耗负载分布的数值研》、刘勋伟《燃气热水器火排燃烧CFD研究》、蔡

丽莉《洗衣机内部霉菌菌群分析及防霉材料效果测定》、王正月《基于单系统风冷冰箱风机遮蔽技术的CFD仿真及研究》、杨章红《防露管对冰箱传热特性影响的仿真和实验研究》、杨宇《基于循环系统的滚筒洗衣机毛屑过滤技术研究》、孟德奇《均质燃烧燃气灶匀温性能试验研究与仿真优化》、吴金鑫《多翼离心风机三维凹凸蜗舌优化设计》、郭绍胜《基于TRIZ理论的干衣机自清洁过滤系统设计》、王宇辰《相变蓄冷空调CNT工质性能研究》、陈开东《家用新风空调低温新风防凝露的实验研究》、唐伟鹏《燃气热水器噪声机理研究》、尹必行《洗碗机洗涤剂新型反导叶的正交设计及数值模拟》、杨守平《极致海运装柜量的大烤箱包装设计优化》、吴童《多孔整流结构厚度对离心风机畸变入流的影响研究》、刘硕《基于单进风多翼离心风机的止回阀气动性能及噪声优化》、刘朋《冷柜门封传热特性分析及绝热性能提升研究》。

20多年来,中国家用电器技术大会论文评审专家团队阵容也在不断扩大,有力支撑了数量规模不断增加的论文评审工作。在此谨代表中国家用电器协会和论文作者,感谢所有评审专家(排名不分先后):吴建华教授、丁国良教授、陈江平教授、何国庚教授、李红旗教授、吴俐俊教授、王瑞祥教授、张华教授、顾新建教授、王秋旺教授、鱼剑琳教授、徐殿国教授、汪朝晖教授、曾葆青教授、李为臻教授、刘圣春教授、杨昭教授、晏刚教授、邹惠明教授、黄敏、万春晖、骆媛媛等专家在酷热的暑期为技术大会论文做的认真评审,为我们作者的研究工作和论文写作所给予的肯定和提出的很多宝贵意见和建议。

在此,郑重地向所有论文作者表示感谢!感谢你们把研究成果以论文的方式参与行业技术交流!感谢你们为行业技术进步和产业升级所做的所有努力!

最后,感谢《电器》编辑工作者为技术大会论文集所做的辛勤工作,与往年相比,今年收到532余篇、入选428篇,编辑工作量仍在加码,谢谢你们为此做出的辛苦付出!

王雷

《电器》杂志

2022年增刊

Competent Authority**主管:** 中国轻工业联合会

Sponsor**主办:** 中国家用电器协会

Publisher**出版:** 《电器》杂志社

Director**社长:** 王雷 Wang Lei

Deputy Director**副社长:** 陈莉 Chen Li/于昊 Yu Hao

国内统一刊号: CN11-5216/TH

增刊刊号: (2022)京新出刊增准字第(235)号

国际标准刊号: ISSN 1672-8823

广告经营许可证: 京东工商广字第0264号

Special Editor-in-Chief of This Issue

本期特约主编: 王雷 Wang Lei

Editor-in-chief**主编:** 陈莉 Chen Li 163chenli@163.com

Associate Editor-in-Chief**副主编:** 于昊 Yu Hao yuhao51@126.com

AD Manager**广告部主管:** 宋扬 Song Yang songyang@126.com

Coordinator of This Issue**本期统筹:** 窦艳伟 Dou Yanwei

Editors**编辑:** 赵明 Zhao Ming/于璇 Yu Xuan

秦丽 Qin Li/李曾婷 Li Zengti

叶珺 Ye Jun

Art Director**美术编辑:** 施力 Shi Li

Legal Consultant**法律顾问:** 李青松 Li Qingsong

Telephone**编辑部电话:** (010) 65224919

Fax**传真:** (010) 65224919

Advertising Hotline**广告热线:** (010) 65252384

E-mail**电子信箱:** dianqi@cheaa.org

Reader Service Hotline**发行热线:** (010) 65231814

Single Issue Price**定价:** 人民币450元

Address**社址:** 北京市东城区广渠门内大街36号
幸福家园7号楼903

Zip Code**邮政编码:** 100062

Website**网址:** <http://www.dianqizazhi.com>

Printing**制版印刷:** 廊坊市百花印刷有限公司

ISSN 1672-8823



版权声明 凡给本刊投稿者,均认为授权本刊独家发表文章,已发表文章版权均为本刊及作者所有,未经本刊同意,不得转载。所有刊出的文章,本刊有权将其转载在自己的网站(<http://www.dianqizazhi.com>),其他自有版权的出版物,以及本刊的合作网站上。

CONTENTS

目录

第一部分 冰箱/冷柜及冰箱压缩机相关技术

冰箱内置式制冰机框架内部风循环对制冰质量的影响.....	(3)
R600a/R290 混合制冷工质系统优化研究	(8)
冰箱压缩机壳体及管路振动分析.....	(11)
浅谈法式冰箱凝露优化.....	(16)
变频压缩机停机的若干变频器控制策略研究	(21)
大数据技术在冰箱产品上的应用研究.....	(27)
不凝气体对家用冰箱性能影响探究.....	(34)
基于 PMOS 驱动的 LED 灯微亮试验设计及改善方案	(39)
基于 PSpice 的仪表放大器电路的仿真研究	(43)
基于 Swin Transformer 和 CNN 模型融合的包装食品目标检测方法研究	(52)
不同放置位置的 VIP 对超薄冷藏室冰箱热负荷及能耗的影响分析	(58)
低温等离子杀菌技术的影响因素研究.....	(64)
基于有限元仿真和模拟实验的制冷器具箱体强度研究.....	(68)
一种基于椭圆规的冰箱嵌入式结构设计分析与应用.....	(73)
不同除味技术的除味效果研究.....	(79)
玻璃搁架承载变形的快速计算.....	(83)
阀片设计对压缩机系统噪声影响的研究.....	(88)
转速选用对变频冰箱噪声控制的影响.....	(92)
嵌入式冰箱蒸发皿设计优化.....	(97)
线性低密度聚乙烯在冷柜缠胆蒸发器上的应用探究.....	(101)
两种假梁对冰箱性能的对比研究.....	(107)
冰箱按压回弹抽屉失效分析与改进研究.....	(114)
电抗器在变频控制器中的匹配应用.....	(120)
R290 工质家用冰箱噪声控制技术研究	(128)
往复式压缩机垫片密封仿真分析.....	(133)
冰箱复合节流能耗影响研究.....	(137)
热气旁通除霜技术在家用风冷冰箱上的应用研究.....	(142)
基于电流重构方法在冰箱压缩机无感控制上的应用研究.....	(146)
智能冰箱显示交互设计与评价研究.....	(151)
不同材质的玻璃搁盘饰条耐腐蚀性分析.....	(156)
基于 DFR 方法的冰箱滚轮可靠性研究	(162)
冰箱冷冻能力测试方法的探讨.....	(169)
基于 DFMEA 和有限元分析的冰箱中铰链设计风险识别和优化	(172)
冰箱用钢板门体结构设计及优化分析.....	(178)
小型化变频控制器设计的关键技术.....	(181)

冰箱压缩机 P-V 试验及应用研究	(187)
冰箱离子除菌技术的应用与研究	(193)
基于 CFD 的冰箱凝露性能分析	(199)
冰箱蒸发器化霜研究及优化分析	(205)
一种机械变频冰箱控制技术的研究	(209)
基于无源超高频 RFID 温度标签的食材管理系统研究	(217)
家用电冰箱辐射发射的研究	(222)
关于提高冰箱内金属导轨使用体验的研究	(228)
浅谈制冰机进水嘴设计及取消加热器的研究与分析	(234)
基于 ANSYS 拓扑优化功能的冰箱部件设计	(241)
滚轮抽屉设计中有限元分析应用	(246)
冰箱内安装金属导轨的抽屉晃动量的研究与改进	(251)
太阳能半导体制冷箱设计	(256)
冰箱制冷系统中真空度的影响探讨	(260)
基于 NX Nastran 的冰箱搁物架刚度分析及结构优化	(265)
标准化 8D 方法在解决冰箱下铰链噪声中的应用	(275)
基于瞬态耦合传热仿真的某风冷冰箱化霜加热器温度分布研究	(283)
高周疲劳材料疲劳寿命拟合方程的研究	(291)
微通道冷凝器在卧式冷柜的应用研究	(296)
风冷无霜冰箱的风阻及其对风扇选型的影响	(302)
冰箱排水泄压阀对开门力及结霜性能研究	(309)
冰箱内齿管蒸发器换热性能实验研究	(317)
冰箱 LED 照明感知质量研究	(324)
风冷冰箱回流噪声设计及影响因素分析	(331)
基于单系统风冷冰箱风机遮蔽技术的 CFD 仿真及研究	(337)
防露管对冰箱传热特性影响的仿真和实验研究	(349)
车载直流箱体启动摩擦噪声改善	(355)
Overhang 结构电机反电势仿真计算与实验研究	(361)
变频冰箱压缩机电机提效技术研究	(366)
R1270 制冷剂在轻商领域应用的理论分析	(371)
一种电子式无功耗启动器的设计实现	(376)
零度保鲜技术在母乳储存中的应用	(382)
冰箱门下沉影响因素的研究	(387)
冰箱压缩机活塞和发蓝连杆磷化工艺的研究	(395)
玻璃格盘装饰条拉力研究	(401)
静磁场对冰箱食品安全的影响	(407)
冰箱瓶架挂耳及支撑点位置选用的研究	(413)
无霜冰箱并联独立双循环系统切换制冷与平行制冷试验探析	(420)
低温下对开门冰箱冷藏室底部结冰的改善研究	(428)
基于卷积块注意力 Xception 网络的冰箱场景异常行为检测	(434)
电机漆包线盐水针孔试验方法改进及应用	(440)
基于混合工质 R170+R600a 压缩机可靠性试验研究	(443)
喷射器应用于冰箱制冷系统研究	(450)
基于 CFD 的某冰箱室内温度场仿真研究与实验分析	(456)

风冷冰箱翅片管蒸发器结霜过程动态计算模型·····	(461)
冰箱压缩机仓中冷凝器散热仿真优化研究·····	(470)
回气管结构优化的仿真分析及试验研究·····	(478)
冰箱 NTC 温度传感器电性能的影响因素研究 ·····	(484)
低温冷冻保鲜用环保工质制冷系统热力分析研究·····	(491)
风冷冰箱风道集流器与风机纵向间隙的优化研究·····	(497)
氨基硅油对聚氯乙烯表面粗糙度和力学性能的影响·····	(504)
冰箱磁场保鲜技术分析与应用研究·····	(509)
冰箱骚扰电压 8MHz 谐振点机理分析及解决方案·····	(513)
驻极体对采后草莓品质影响的研究·····	(521)
超宽频迷官型声学超材料的设计及其在冰箱压机舱的应用·····	(529)
基于 NSGA-II 多目标遗传算法的螺旋风门降噪设计 ·····	(536)
回热器在制冷系统中的应用研究·····	(543)
健康深冷无霜冰箱、冷柜研究 ·····	(549)
纳米添加剂提升冷柜能效的应用研究·····	(555)
压缩 - 半导体复叠在深冷、多温冰箱的应用研究 ·····	(561)
冰箱制冷系统动态仿真的应用研究·····	(566)
镀冰衣的成型因素分析·····	(572)
TRIZ 理论在压缩机壳体焊接中的应用研究 ·····	(578)
冷柜门封传热特性分析及绝热性能提升研究·····	(583)

第二部分 空调/热泵及空调压缩机相关技术

关于空调器分流器组件生产精益化的研究与应用·····	(601)
家电应用中电快速瞬变脉冲群的改进研究·····	(606)
空调售后 E 方数据读取与存储方法研究 ·····	(611)
旋转式压缩机轴承磨损研究·····	(615)
一种高温定频窗机的双 U 型管路减振效果的研究 ·····	(621)
浅析活塞式压缩机在家用空调器上的设计与应用·····	(626)
挂壁式空调器面板运动机构可靠性仿真分析·····	(632)
移动空调送风角度改善及优化分析·····	(636)
电磁加热对空调器制热性能的影响研究·····	(640)
长连接管制冷系统性能优化试验分析·····	(646)
家用空调贯流风道流场仿真方法与试验验证·····	(653)
基于 Moldex3D 仿真分析的免喷涂装饰条优化设计 ·····	(658)
浅谈空调换热器管件焊接质量的改善·····	(669)
电加热微融吹霜技术在空调上的研究·····	(674)
空调铝热交换器的生产稳定性研究·····	(683)
喷气增焓热风机低温运行稳定性优化的试验研究·····	(690)
空调室内机风速与除湿量关系试验研究·····	(696)
多联内机连接管制冷剂音的多影响因素分析·····	(704)
关于红外人感在空调柜机上实现智能风避人的研究与应用·····	(707)
空调连接管材料对比分析与应用研究·····	(714)
分体挂壁空调贯流风机旋转噪声的改善研究·····	(720)
改性 PP 在壁挂式空调底座上的应用研究 ·····	(726)

壁挂空调凝露吹水分析·····	(730)
基于空调挂机的离子除菌功能研究·····	(733)
基于有限元模拟的空调出风网罩结构对安规试验指的影响研究·····	(737)
空调室外机夹持强度研究·····	(741)
基于随机振动疲劳仿真技术优化空调室外机管路设计·····	(747)
空调配管停机应力仿真分析·····	(752)
R454B 制冷剂替换 R410A 与 R32 的可行研究 ·····	(757)
基于智能温湿检测的空调舒适度的研究·····	(762)
基于变增益滑模观测器的 BLDC 无传感器控制系统研究·····	(767)
变频空调压缩机预热逻辑优化研究·····	(774)
轴流风叶结构强度研究·····	(778)
吹风式风冷柜风场流动均匀性及优化研究·····	(784)
进液支管角度对于空调性能的实验研究·····	(790)
室外小管径换热器换热性能研究·····	(795)
基于神经网络自整定的分数阶内模控制器对于空调房间温度的控制·····	(799)
红外控制技术在智能人感空调上的应用·····	(805)
智能家居大数据分析系统设计·····	(809)
空调的空腔噪声分析和改善·····	(822)
基于 ANSYS19 版仿真与试验研究的空调内外机连接管规格设计 ·····	(827)
基于低密度导向筋条角度的空调外机网罩性能研究·····	(833)
无运放电流采样电路在变频空调中的应用·····	(837)
空调室外机风机性能优化研究·····	(841)
多联内机电膨胀阀异响分析·····	(846)
空调辅助电加热故障预防探讨·····	(851)
基于 TPA 仿真分析的空调室外机墙体共振机理研究 ·····	(856)
壁挂式空调在集装箱内装柜量提升研究·····	(863)
空调内机电机振动引起的噪声问题分析·····	(870)
空调室外机轴流风扇优化设计·····	(878)
壁挂式空调模型尺寸对噪声仿真结果精度影响研究·····	(884)
滚动转子式压缩机叶片端面织构对油膜密封性能的影响研究·····	(891)
房间空调器运行节能技术规范研究·····	(899)
基于 LMS 的热泵空调传响减振降噪分析 ·····	(906)
直流变频压缩机绕组温度推算技术研究及应用·····	(912)
空调压缩机无磁钢材料技术研究·····	(917)
空调钣金固有频率影响因子分析·····	(923)
吊顶式空调接水盘内风场研究·····	(929)
一种一体式空调的凝露仿真分析·····	(934)
紧凑型小管径蒸发器在分体空调上的应用研究·····	(940)
声学黑洞技术在压缩机上的研究及应用·····	(944)
多联机智能低碳化运行的发展与展望·····	(951)
一种打水电机检测水量技术的应用研究·····	(956)
不同形制蒸发器对双贯流空调气动性能的影响·····	(960)
细管径换热器在 R32 制冷剂空调上的应用 ·····	(966)
空调室外机分流特性模拟分析及优化设计·····	(972)

壁挂式空调易拆解研究·····	(978)
BOOST 型 PFC 变载波频率控制技术的研究与应用 ·····	(983)
R290 空调节流可靠性分析 ·····	(989)
变频空调温湿双控功能研究·····	(993)
大风量新风安装管的免扩孔设计与应用·····	(997)
对提高空调低温制冷可靠性的研究分析·····	(1003)
相变蓄冷空调 CNT 工质性能研究 ·····	(1007)
柜机贯流风机系统性能升级研究·····	(1012)
家用新风空调低温新风防凝露的实验研究·····	(1017)
空调室外机轴流风机系统异音分析·····	(1023)
空调新风系统声品质改善研究·····	(1028)
空调用合金连接管可靠性研究·····	(1033)
基于 CAE+ 的空调室外机包装方案优化·····	(1038)
铝线压缩机选型及可靠性研究·····	(1046)
浅谈日系家用空调新风换气产品及技术研究·····	(1050)
提升变频窗机制冷舒适性实验研究·····	(1057)
空调新型电子膨胀阀的设计与控制·····	(1062)
家用空调增氧技术分析研究·····	(1070)
一种智能家电快速进入配网状态的方法设计·····	(1076)
空调外机轴流风叶设计研究·····	(1080)
关于空调低温制冷功能的研究·····	(1085)
基于 LPL 优化协议的中央空调控制方法的设计与实现 ·····	(1088)
空调控制器双路输出 BUCK 电源控制系统的设计及研究 ·····	(1096)
大多联系统冷媒量判断优化分析·····	(1103)
基于有限元仿真的空调室外机底盘减薄研究·····	(1107)
双目立体视觉图像处理在中央空调清扫机器人的研究应用·····	(1114)
一种基于输入电压前馈和过零检测的图腾柱 PFC 变换器控制策略 ·····	(1123)
化学微发泡聚丙烯材料研究进展·····	(1133)
壁挂式空调气流稳定性研究与应用·····	(1139)
声学超材料特性及在风管机降噪中的应用研究·····	(1143)
空调散热器关键设计参数对散热性能的影响规律研究·····	(1151)
立式风管机空调凝露 CFD 仿真分析及实验验证 ·····	(1157)
空调压缩机电机的多极化探讨研究·····	(1164)
基于可变分流设计的 R32 空调系统性能提升研究 ·····	(1170)
大规格压缩机辅助轴承的应用研究·····	(1176)

第三部分 洗衣机相关技术

基于文丘里原理的壁挂滚筒洗衣机投放技术研究·····	(1183)
基于 LDA_SVM 的洗衣机布质感知算法研究 ·····	(1188)
基于频响分析的洗衣机轮带共振噪声研究·····	(1196)
热泵型干衣机制冷剂泄漏检测与保护程序研究·····	(1204)
衣物护理机用加热器的设计与实现·····	(1209)
RFID 技术在衣联网上的应用和模块标准的制定 ·····	(1216)
个性化定制洗衣机定制流程和控制系统设计·····	(1222)

高分子复合材料配重块在滚筒洗衣机中的应用研究·····	(1227)
洗衣机控制面板内部结雾的热分析及设计优化·····	(1232)
滚筒洗衣机内部微生物类群及防霉材料效果测定·····	(1238)
渐开线花键传动在滚筒洗衣机上的应用·····	(1245)
蒸汽洗技术对蛋白质纤维材质面料性能影响·····	(1250)
波轮洗衣机筒模块仿真技术研究·····	(1255)
滚筒洗衣机门封非线性仿真技术研究应用·····	(1259)
家庭衣物洗护设备使用阶段的能耗问题及优化建议·····	(1264)
聚合物纳米洗涤剂对织物和洗衣机的洗涤影响·····	(1271)
三维多孔聚合物半导体在洗衣机水活化方面的研究·····	(1276)
基于循环系统的滚筒洗衣机毛屑过滤技术研究·····	(1281)
基于干衣机 MEMS 温湿度传感器的深度学习算法应用 ·····	(1288)
家庭洗护方式对层压织物防水性能的影响·····	(1293)
毛刷式洗鞋机关键结构优化设计·····	(1297)
热泵干衣机的凝露分析及防凝露方法·····	(1302)
双热源耦合干燥技术的分阶段热源配置对于干衣性能影响研究·····	(1306)
网器预测性维护的方法与探究·····	(1311)
洗衣机支架结构振动分析与优化研究·····	(1318)
一种基于 TFT 屏幕实现洗衣机程序图卡智能排序及收藏的方法 ·····	(1322)
滚筒洗衣机用密封件材质对洗衣机内桶气味的影响探究·····	(1329)
一种干衣机高效匀烘技术的研究和应用·····	(1333)
滚筒洗衣机脱水分布时减少衣物磨损的研究·····	(1340)
基于区块链的洗衣机通讯模组加密方案设计·····	(1344)
矩阵式红外测温技术在干衣机上的应用研究·····	(1349)
洗衣机进水阀检测方法研究·····	(1354)
洗干一体机烘道热流性能 CFD 仿真设计 ·····	(1357)
基于 TRIZ 理论的干衣机自清洁过滤系统设计 ·····	(1361)
双螺旋线屑自清洁技术仿真研究与应用·····	(1372)
电机端盖结构轻量化设计及其对波轮洗衣机噪声的影响分析·····	(1376)
自过滤清洁技术的研究及应用·····	(1381)
浅析电动晾衣机用户需求及未来发展趋势·····	(1385)
滚筒洗衣机门密封垫动态特性研究·····	(1389)
双变频洗衣机控制系统的抗干扰设计与仿真·····	(1397)
热泵干衣机的设计与运行性能的实验研究·····	(1402)
滚筒洗衣机皮带轮强度仿真分析研究·····	(1407)
双滚筒洗衣机振动系统优化与应用·····	(1412)
洗衣机衣物处理剂虹吸结构残留水的分析与探究·····	(1418)
一种洗衣机用液压自动调平稳装置的研究及产业化·····	(1422)
波轮洗衣机整机跌落仿真分析及包装优化·····	(1428)

第四部分 厨房电器相关技术

开关电源输出纹波噪声分析与控制·····	(1437)
集烟腔结构对吸油烟机排烟效率影响的数值模拟研究·····	(1443)
吸油烟机清洗模块噪声分析优化·····	(1447)

吸油烟机安装位置对吸烟效果研究·····	(1454)
吸油烟机吸烟口的位置对吸烟效果的研究·····	(1459)
吸油烟机单侧及双侧进风风机噪声性能对比·····	(1466)
基于跌落仿真的吸油烟机蜗壳结构优化设计·····	(1472)
基于跌落仿真的吸油烟机包装优化方案设计·····	(1477)
基于神经网络模型学习算法的吸油烟机烟雾识别研究·····	(1486)
吸油烟机油网进风面积及进风区域对风量噪声影响的研究·····	(1490)
吸油烟机风幕系统对油烟逃逸的改善·····	(1494)
改进的磁链观测器在直流变频吸油烟机上的应用研究·····	(1502)
基于 UG 的嵌入式大烤箱铰链中弹簧的力学分析·····	(1509)
烤箱玻璃门温升规律及应力仿真分析·····	(1515)
微烤组合加热对茄子中绿原酸的保留研究·····	(1522)
微细气泡水释放器的研究·····	(1526)
智控除烟净味技术在蒸烤箱上的应用研究·····	(1531)
喷嘴安装对燃烧器状态的影响·····	(1536)
烘焙过程中曲奇饼干品质变化的研究·····	(1541)
基于 Fluent 对电烤箱主板温升改善的分析与研究·····	(1545)
洗碗机腔内对流换热过程 CFD 研究·····	(1550)
微波炉纸塑包装跌落仿真·····	(1556)
不同焯水处理对虾仁品质的影响·····	(1562)
多翼离心风机的参数化设计与优化·····	(1566)
关于洗碗机分水阀技术的改进研究及其应用·····	(1571)
基于智能吸油烟机语音控制软件设计·····	(1576)
显示技术在厨电产品中可靠性应用研究·····	(1582)
基于智能家电的高血脂管理系统的创新技术与应用·····	(1586)
一种基于 Android 平台的全双工语音自动化测试方法·····	(1591)
无线智能测温系统在烹饪中的应用及体验提升·····	(1596)
基于单目相机的食物实时三维重建技术·····	(1602)
烘焙知识智能问答系统设计与实现研究·····	(1607)
微波复热红烧肉均匀性改善研究·····	(1613)
一种吸油烟机钣金件结构强度计算和优化分析·····	(1617)
论吸油烟机蜗舌的结构优化对噪声的改善·····	(1621)
大功率燃烧器在驻立式烤箱上的应用·····	(1626)
不同叶片数离心风机在吸油烟机上的性能影响的研究与分析·····	(1631)
不同复热方式对冷冻馒头复热效果的研究·····	(1638)
空气炸烤箱烹饪鸡块技术研究·····	(1643)
配方和烹饪方式对蛋挞烹饪品质的影响·····	(1648)
微波炉连锁系统动力学仿真分析·····	(1653)
三燃烧器富氢天然气型家用燃气灶具研究开发·····	(1660)
基于正交试验的分离式电煮锅的加热优化研究·····	(1666)
基于智能电烤箱的烹饪过程温度曲线探究与应用·····	(1671)
智能化云菜谱一键烹饪技术的设计与实现·····	(1676)
不同蒸制条件对茄子花青素的影响研究·····	(1681)
基于 Workbench 的嵌入式微波炉密封圈模态优化仿真分析·····	(1684)

控湿技术在蒸烤一体机的研究及应用·····	(1689)
智能电烤箱摄像头应用探讨·····	(1696)
洗碗机整机传热过程和能耗负载分布的数值研究·····	(1702)
基于小样本学习的锅中水沸腾时刻预测研究·····	(1711)
一种吸油烟机清洗系统结构及控制方式·····	(1716)
不同楼层阻力下烟机不同烹饪状态的吸油烟效果调节控制方法研究·····	(1722)
模拟用户实际工况的吸烟效果测试方法·····	(1730)
一种吸油烟机的烟管耐压性检测方法·····	(1736)
基于 Simulink 烤箱模型在产品开发中的应用研究 ·····	(1740)
洗碗机内单圆孔射流洗涤机理研究·····	(1745)
应用 Apriori 算法的洗碗机茶渍清洗影响因素研究 ·····	(1750)
基于气味检测的吸油烟机智能清洁提醒方案·····	(1758)
燃气灶点火针放电特性的影响研究·····	(1763)
直流背压反馈系统在吸油烟机上的应用研究·····	(1767)
基于 DRBFM 方法的油烟机减速电机轴和曲柄固定方式的设计方案改进和实施 ·····	(1771)
家电典型异味气体三甲胺净化技术研究进展·····	(1777)
浅析商用双核变频微波炉谐波电流整改及标准解读·····	(1783)
完全上进风式家用燃气灶热负荷变化的探究·····	(1793)
燃气灶电池温升分析及改善研究·····	(1800)
燃气灶蒸制山药的抗氧化性和口感变化分析·····	(1804)
电蒸箱静态水除菌方案的研究设计·····	(1810)
提升洗碗机喷淋覆盖率的技术研究·····	(1814)
洗碗机消毒技术的研究与应用·····	(1818)
基于 PIV 和图像处理的油烟逃逸体积量化分析 ·····	(1823)
隔热结构对防干烧灶具准确性的影响研究·····	(1829)
不同熟制温度及烹饪方式对牛排品质的影响研究·····	(1833)
均质燃烧燃气灶匀温性能试验研究与仿真优化·····	(1838)
多翼离心风机三维凹凸蜗舌优化设计·····	(1842)
合成射流对大气式燃气灶热效率影响的机理研究·····	(1851)
洗碗机洗涤泵新型反导叶的正交设计及数值模拟·····	(1859)
极致海运装柜量的大烤箱包装设计优化·····	(1867)
多孔整流结构厚度对离心风机畸变入流的影响研究·····	(1875)
基于声振耦合的多翼离心风机优化设计·····	(1883)
基于网格变形方法的烟机外壳尺寸对风量的影响研究·····	(1889)
吸油烟机工作噪声声品质建模研究与实践·····	(1897)
基于集成灶的厨房热舒适性提升研究·····	(1904)
某嵌入式厨电产品内胆焊接装置保护气体均匀性研究·····	(1915)
基于 Canny 算法在蒸烤一体机图像识别应用的研究 ·····	(1923)
蒸烤箱摄像单元安装结构设计及优化研究·····	(1928)
双腔速吸集成灶吸烟性能分析及其结构优化设计·····	(1933)
集成灶强制对流对烘焙效果的影响研究与应用·····	(1941)
一种超高水路的洗涤泵进水口优化设计·····	(1945)
基于 BP 神经网络的洗碗机清洁指数预测模型 ·····	(1950)
基于 TRIZ 理论的集成灶风箱 ·····	(1955)

系统油路问题的研究·····	(1955)
基于 TRIZ 的燃气灶松手熄火问题研究 ·····	(1963)
基于 TRIZ 在超薄吸油烟机上设计应用 ·····	(1971)
不同结构门封条对一体机门封性能的影响研究·····	(1977)
基于 Paho MQTT 的终端数据模拟软件设计与应用 ·····	(1982)
浅析内部布线通道中“无锐利棱边”的区分与界定 ·····	(1987)
洗碗机清洁性能测试与研究·····	(1991)
蒸箱高原模式的研究·····	(1995)
厨电产品 DC-DC 变换器极限输入电压的研究 ·····	(2000)
基于用户场景的老年人灶具产品设计研究·····	(2006)
基于单进风多翼离心风机的止回阀气动性能及噪声优化·····	(2013)
洗碗机循环泵虚拟仿真设计及应用·····	(2019)
一种新型燃气灶防干烧技术的应用研究·····	(2023)

第五部分 其他家用电器相关技术

扫地机器人滚刷防缠绕技术研究·····	(2031)
R290 制冷剂在除湿机中的应用研究 ·····	(2041)
扫地机器人基站集尘系统研究·····	(2045)
基于 HyperWorks/RADIOSS 的燃气热水器包装跌落仿真 ·····	(2050)
基于 H 桥交流斩波调压的单相异步电机调速技术 ·····	(2056)
基于跌落仿真的电热水器包装降本优化设计·····	(2061)
基于热泵干衣机动态仿真模型的系统性能优化研究·····	(2067)
破壁机低速研磨技术对性能影响的研究·····	(2073)
用于熨烫产品的蒸汽发生器除垢设计·····	(2080)
电磁灶锅具温度非接触测量与控制技术研究·····	(2085)
基于 Kano 模型的户外暖水杯的功能需求研究 ·····	(2089)
燃气采暖炉强绕流翅片式换热器的研究·····	(2095)
相变储热技术在电热水器的应用与试验研究·····	(2099)
不同加热结构对电热水器热水量的影响分析·····	(2106)
关于提高电热水器总热水量的探讨·····	(2110)
一种全自动电饭煲洗米的原理分析与研究·····	(2114)
燃气热水器火排燃烧 CFD 研究 ·····	(2117)
交流变频风机在强抽式燃气热水器中的应用研究·····	(2125)
分段方式对恒温式燃气热水器恒温性能的影响探讨·····	(2130)
澳标燃气热水器综合性能研究·····	(2134)
高强板在电热水器内胆的应用·····	(2138)
活性炭净水滤芯高效杀菌模块和抗菌材料研究·····	(2143)
空气源热泵热水器的热水温度与性能系数·····	(2147)
全预混燃气热水器对掺氢天然气适应性研究·····	(2151)
肉糜类婴儿辅食的制备工艺研究·····	(2156)
冷硬板在储水式电热水器外壳筒身的应用·····	(2162)
一种烘干用风扇电机运行控制研究·····	(2167)
基于 MPID 算法的双擎热水器控温方法 ·····	(2171)
火排引射段结构参数对一次空气系数影响的数值模拟·····	(2179)

基于深度学习的鞋面材质识别技术·····	(2183)
燃气热水器噪声机理研究·····	(2188)
风压传感器在燃气热水器上的应用·····	(2202)
家用洗地机除菌技术发展趋势研究·····	(2207)
吸尘器地毯起尘机理研究·····	(2213)
手持吸尘器减阻提效机理研究·····	(2219)
吸尘器跌落测试与仿真优化·····	(2227)
基于 CFD 技术在燃气热水器中气动降噪应用研究 ·····	(2233)
悬挂式增压泵净水机减振降噪分析·····	(2238)
燃气热水器传热性能试验与优化分析·····	(2246)
基于 DFMA 技术的高能效电热水器降成本设计 ·····	(2250)
采暖管路中的磁性过滤器的应用研究·····	(2255)
关于储水式电热水器防起火电源插头的研究·····	(2262)
外盘管式 R290 热泵热水器制冷剂泄漏安全性研究 ·····	(2270)
抗菌防霉硅橡胶在电饭煲及烹饪器具上的应用·····	(2280)
负离子在静电净化器上的应用及性能研究·····	(2285)
电压力锅焖焗工艺对五花肉品质的影响·····	(2290)
电压力锅煲汤风味形成机理及提升研究·····	(2302)
含气隙的差模电感对家用电器传导干扰性能的影响研究与分析·····	(2307)

第六部分 综 合 类

残余电压测试装置的设计与实现·····	(2319)
基于智能产品的个性化参数配置平台·····	(2322)
基于双频相位法雷达测距算法的研究·····	(2327)
永磁径向磁场电机端部效应仿真分析与改善·····	(2333)
基于食材识别卷积神经网络模型小型化研究·····	(2339)
基于开放场景下的食材检测识别与菜谱推荐·····	(2344)
售后备件的开发及其在产品生命周期的价值·····	(2349)
智能家居领域全屋智慧场景全生命周期管理流程体系搭建和系统实施方案·····	(2353)
连杆平行度对冰箱压缩机磨损行为影响的研究·····	(2358)
电机“松动声”噪声分析与改善 ·····	(2363)
往复压缩机匹配冰箱系统噪声传递路径贡献分析研究·····	(2367)
Halbach 磁环在分数槽集中绕组永磁同步电机中的应用 ·····	(2378)
基于浴室场景的热水控制系统开发与应用·····	(2383)
电磁继电器失效分析与可靠性提升·····	(2387)
家用电器锐利边缘的产生原因与优化改进研究·····	(2393)
基于食品加工技术降低淀粉制品升糖指数的研究进展·····	(2401)
基于图像颜色识别的电机生锈评估方法·····	(2405)
富氢天然气在民用燃具中应用研究进展·····	(2411)
高温天气对 PUR 热熔胶固化反应的试验研究 ·····	(2419)
不同加热器对电子阳极影响的试验分析·····	(2429)
多维度设计降本助力企业化危为机·····	(2433)
往复压缩机曲轴主副轴磨损研究·····	(2440)
家电产品包装降本的自动智能化仿真解决方案·····	(2446)

塑封结构电机的性能、成本优势及其发展	(2453)
刚韧平衡的高效抗菌 HIPS 材料	(2458)
智能家电 APP 的自动化开发平台研究	(2462)
基于动态知识图谱的家庭健康指导的研究	(2468)
泄漏电流测试方法及原理探讨	(2477)
智能语音技术在热水器上的研究与应用	(2480)
大数据时代下的体验测量方法研究	(2484)
不同润滑油对 R290 干衣机用压缩机性能的影响研究	(2489)

CONTENTS

Part 1 REFRIGERATION AND COMPRESSOR TECHNOLOGY

The Influence of the Air Circulation Inside the Frame of the Refrigerator Built-in Ice Maker on the Ice-making Quality	(3)
Research on Optimization of R600a/R290 Mixed Refrigerant System	(8)
Vibration Analysis of Refrigerator Compressor's Shell and Pipeline	(11)
Discussion on Optimization of French Refrigerator Condensation	(16)
Research on Several Inverter Control Strategies for Compressor Shutdown	(21)
Research on the Application of Big Data Technology in Refrigerator Products	(27)
Study on the Influence of Non-condensable Gas on the Performance of Household Refrigerator	(34)
Experimental Design and Improvement Scheme of LED Micro-brightness Based on PMOS Drive	(39)
Simulation Research of Instrumentation Amplifier Circuit Based on PSpice	(43)
Research on Packaged Food Object Detection Method Based on Swin Transformer and CNN Model Merging	(52)
Analysis on the Influence of VIP in Different Positions on the Thermal Load and Energy Consumption of Ultra-thin Refrigerator	(58)
Influencing Factors of Low Temperature Plasma Sterilization Technology	(64)
Research on the Strength of Refrigerator Box Based on Finite Element Simulation and Experiment	(68)
Design and Analysis of Embedded Structure of Refrigerator Based on Elliptical Gauge	(73)
Study on Deodorization Effects of Different Deodorization Techniques	(79)
Rapid Calculation of Deformation for Glass Shelf Bearing Load	(83)
Research to Develop Design Guidelines for the Influence of Valve Design on the Noise of Compressor Systems	(88)
Influence of Compressor's Speed Selection on Refrigerator's Noise Control	(92)
Optimal Design of Evaporating Dish in Built-in Refrigerator	(97)
Application of LLDPE in the Evaporator of Refrigerator	(101)
Research on Affection to Refrigerator of Two Kinds Fake Traverse	(107)
Failure Analysis and Improvement of Refrigerator's Push Open Drawer	(114)
Matching of Reactors in Frequency Conversion Controller	(120)
Study on Noise Control Technology of R290 Household Refrigerator	(128)
Simulation Analysis of Gasket Seal of Reciprocating Compressor	(133)
Study on Energy Consumption of Refrigerator Combined Throttling	(137)
Application of Defrosting Technology by Hot Air Side in Household Air-cooled Refrigerators	(142)
Sensorless Current Sensing and Reconstruction Method for Refrigerator Compressor Control	(146)
Design and Evaluation of Intelligent Refrigerator's Display Interaction	(151)
Analysis of Corrosion Resistance of Glass Plate Profiles of Different Materials	(156)
Study on The Reliability of Refrigerator Roller Based on DFR Methodology	(162)
Discussion on Freezing Capacity Testing Methods of Refrigerators	(169)
Design Risk Identification and Optimization of Refrigerator's Middle Hinge Based on DFMEA and FEM	(172)

Structural Design and Optimization of Steel Door for Refrigerator	(178)
The Key Technology in The Design of Miniaturized Variable Frequency Controller	(181)
Research and Application of <i>P-V</i> Test of Refrigerator Compressor	(187)
The Application and Research of The Ion Sterilization Technology of The Refrigerator	(193)
The Temperature Field Analysis of The Refrigerator Condensation Based on CFD Simulation	(199)
Research of Evaporator Defrosting in Frost-Free Refrigerator and Optimization.....	(205)
Study on A Control Technology of Variable Frequency Refrigerator	(209)
Research on Food Management System Based on Passive UHF RFID Temperature Tag	(217)
Study on Radiated Emission of Refrigerator.....	(222)
Research on the Improvement of User Feelings of Metal Rail in Refrigerator	(228)
Water Nozzle Design Introduction, Research and Analysis to Cancel Nozzle Heater	(234)
Design of Refrigerator Parts Based on ANSYS Topology Optimization Function	(241)
Application of Finite Element Analysis in the Design of Roller Drawer	(246)
Research and Improvement on the Shaking of Drawer with Metal Rail in Refrigerator	(251)
Design of Solar Semiconductor Refrigeration Box	(256)
Discussion on Influence of Vacuum Degree in Refrigeration System	(260)
Rigid Strength Analysis and Structural Optimization of Refrigerator Shelf Based on NX Nastran	(265)
Application of Standardized 8D Method in Solving Bottom Hinge Noise Problem of Refrigerator	(275)
Study on Temperature Distribution of Defrost Heater in a Non-Frost Refrigerator Based on Transient Conjugate Heat Transfer Simulation	(283)
Research on Fatigue Life Fitting Equations of High Cycle Fatigue Materials	(291)
Application of Micro-Channel Condenser on the Horizontal Freezer	(296)
Airflow Resistance of Frost-Free Refrigerator and Its Influence on Fan Selection	(302)
Research on Door Opening Force and Frosting Performance of Refrigerator Water-air Balance Valve	(309)
Experimental Study on Heat Exchange Performance of Inner Grooved Tube Evaporator in Refrigerator	(317)
Research on Perceived Quality of Refrigerator LED Light.....	(324)
Backflow Noise Design and Influence Factors Analysis of Air-Cooled Refrigerator	(331)
CFD Simulation and Research on Fan Shielding Technology of Frost-Free Refrigerator Based on Single System	(337)
Simulation and Experimental Research on Frame Heater's Influence on Refrigerator's Heat Transfer Characteristics	(349)
Friction Noise Improvement on Starting Noise of a Vehicle DC Fridge	(355)
Simulated and Experimental Research on Back EMF of Motor with Overhang Structure	(361)
Research on Efficiency Improvement Technology of Motor for Variable-Frequency Refrigerator Compressor	(366)
Theoretical Study of R1270 Application in Light Commercial Refrigerated Cabinets	(371)
Design and Implementation of an Electronic Non Power Consumption Starting Relay	(376)
Application of VitaFresh Technology for Breast Milk Storage	(382)
Research on the Influencing Factors of Refrigerator Door Sagging	(387)
Study on Phosphating Technology of Piston and Blue Connecting Rod of Refrigerator Compressor	(395)
Research on Pull-Off Force of Glass Shelf Profile	(401)

Study on Effect of Magnetic Field on Fresh-Keeping of Fruits and Vegetables in Cold Storage	(407)
Study on the Selection of Door Tray Hooks and Support Points	(413)
Experiment and Analysis for Frost-free Refrigerator with Parallel Independent Dual Cooling System Under Parallel Cooling Control Mode and Alternating Cooling Control Mode	(420)
Study on the Improvement of Freezing in the Bottom of Open-door Refrigerator at Low Temperature	(428)
Abnormal Behavior Detection Based on Xception Network with Convolution Block Attention Module in Refrigerator	(434)
Improvement and Application of Brine Pinhole Test Method for Enameled Wire of Motor.....	(440)
Reliability Test Research Based on Mixed Refrigerant R170+R600a Compressor	(443)
Study on the Ejector Refrigeration System Applied in a Refrigerator	(450)
Simulation and Experimental Analysis of Temperature Field in Refrigerator Based on CFD	(456)
Transient Simulation of a Fin-Tube Evaporator Forst Formation for a No-Frost Refrigerator.....	(461)
Simulation and Optimization of Condenser Heat Dissipation in Refrigerator Compressor Chamber	(470)
Simulation Analysis and Experimental Research on Structure Optimization of Air Return Pipe	(478)
Research on Influence Factors of Electrical Performance for Refrigerator NTC Temperature Sensor	(484)
Thermodynamic Analysis of Refrigeration System with Environment-friendly Refrigerant for Food Cryogenic Preservation	(491)
Optimization of Longitudinal Gap Between Air Duct Collector and Fan in Air-cooled Refrigerator	(497)
Influence of Amino Silicone Oil on Surface Roughness and Mechanical Properties of PVC.....	(504)
Analysis and Application Research of Magnetic Field Preservation Technology in Refrigerator	(509)
Analysis and Solutions of Refrigerator Disturbance Voltage 8 MHZ Resonance Point Mechanism.....	(513)
Effect of Electret Treatment on the Postharvest Quality of Strawberry Fruit at Refrigeration Temperature	(521)
Design of Broadband Labyrinthine Acoustic Metamaterial and its Application on Refrigerator Compressor Compartment	(529)
Noise Reduction Design of Spiral Damper Based on NSGA-II Multi-objectivegenetic Algorithm	(536)
Application of Regenerator on Refrigeration System	(543)
Research on Healthy Deep Cold Frost Free Refrigerator / Freezer	(549)
Application of Nano Additives to Improve Energy Efficiency of Freezers	(555)
Application of Compression Stacked Semiconductor on Cryogenic and Multi Temperature Refrigerators	(561)
Application Research on Dynamic Simulation of Refrigeration System in Household Refrigerator/Freezer	(566)
Analysis of Formation Factor of Ice Coat	(572)
Application and Research of TRIZ Theory in Welding Compressor Shell	(578)
Research on Heat Transfer Characteristics Analysis and Insulation Property Improvement of Freezer Gasket	(583)

Part 2 AIR CONDITIONING, HEAT PUMP AND COMPRESSOR TECHNOLOGY

Research and Application on Lean Production of Air Conditioner Shunt Components	(601)
Research of EFT in Appliance Application's Improvement	(606)
Research on the Method of Reading and Storing Air Conditioner After-sales EEPROM Parameters	(611)

Research on Abnormal Bearing Wear of Rotary Compressor	(615)
Study on the Vibration Reduction Effect of Double U-shaped Pipeline with High Temperature Fixed Frequency Window Machine	(621)
Design and Application of Piston Compressor on Domestic Air Conditioner.....	(626)
Simulation and Fatigue Life Analysis of Air-conditioning Panel Motion Mechanism	(632)
Improvement and Optimization Analysis of Air Supply Angle of Mobile Air Conditioner.....	(636)
Research on the Influence of Electromagnetic Heating on the Heating Performance of Air Conditioner	(640)
Experimental Analysis on Performance Optimization of Long Connecting Pipe Refrigeration System	(646)
Research and Experimental Verification of Flow Field Simulation Method for Cross-flow Duct of Domestic Air Conditioner	(653)
Optimized Design of Spray-free Decorative Strip Based on Moldex3D Simulation Analysis.....	(658)
Improvement of Welding Quality of Air Conditioning Heat Exchanger's Pipe Fittings.....	(669)
Experimental Study on Heater-assisted Defrosting with Fan Blow in Air-source Heat Pump Air conditioners	(674)
Research on Productivity of Aluminum Heat Exchanger for Air Conditioner	(683)
Experimental Study on Optimization of Low Temperature Operation Stability of Air heater with Vapor-injection	(690)
Experimental Study on The Relationship Between Wind Speed and Dehumidification Capacity of Air Conditioner Indoor Unit	(696)
Analysis of Multiple Influencing Factors of Multi-connection Tube Refrigerant Sound	(704)
Research and Application of Infrared Human Sense to Realize Intelligent Wind and Human Avoidance on Cabinet Air Conditioner	(707)
Comparative Analysis and Application Research of Air Conditioner Connecting Pipe Materials	(714)
Research on Reducing Rotating Noise of Cross-flow Fan of Split Wall-mounted Air Conditioner	(720)
Research on The Application of Modified Polypropylene Material for The Base in The Wall-mounted Air Conditioner	(726)
Analysis and Rectification of Condensation Blowing Water of Wall-mounted Air Conditioner	(730)
Study on Ion Sterilization Function Based on Hanging Air Conditioner	(733)
Influence of Air Outlet Mesh Enclosure Structure on Safety Test Finger Based on Finite Element Simulation.....	(737)
Research on Clamping Strength of Outdoor Unit of Air Conditioner	(741)
Optimization of Air Conditioner Outdoor Unit Pipes Design Based on Random Vibration Fatigue Simulation.....	(747)
Simulation Analysis of Shutdown Stress of Air Conditioning Piping	(752)
Feasibility Study of R454B Refrigerant to Replace R410A and R32	(757)
Research on Air Conditioning Comfort Based on Intelligent Temperature and Humidity Detection.....	(762)
Research on BLDC Sensorless Control System Based on Variable Gain Sliding Mode Observer	(767)
Research on Optimization of Preheating Logic of Inverter Air Conditioner Compressor	(774)
Study on Structural Strength of Axial Flow Fan	(778)
Study on The flow Uniformity and Optimization of The Air Field in The Blowing Air-cooled Distributor.....	(784)
An Experimental Study on Effect of The Air Conditioner Performance of Inlet Branch Pipe Angle	(790)

Study on Heat Transfer Performance of Outdoor Small-diameter Heat Exchanger.....	(795)
Fractional Order Internal Model Controller Based on Neural Network Self-tuning Temperature	
Control of Air-conditioned room	(799)
Application of Infrared Control Technology in Intelligent Human-feeling Air Conditioner	(805)
Smart Home Big Data Analysis System Design	(809)
Analysis and Reduction of Air Conditioning Cavity's Noise	(822)
Specification Design of Internal and External Connecting Pipe of Air Conditioner Based on Finite	
Element Simulation and Experimental Research	(827)
Research on Performance of Air Conditioning Outdoor Unit's Air Guide Plate Based on Low Density	
Guide Bar Angle	(833)
Application of Current Sampling Circuit Without Operational Amplifier in Inverter Air Conditioner	(837)
Study on Performance Optimization of Outdoor Air Conditioning Fan	(841)
Analysis on Abnormal Sound of Electronic Expansion Valve of Multi-Connected Internal Unit	(846)
Discussion on Fault Prevention of Air-Conditioner's Supplementary Heater.....	(851)
Research on Resonance Mechanism of the External Air Conditioner Based on TPA Simulation	
Analysis.....	(856)
Research on Increasing the Loading Capacity of Wall-Mounted Air Conditioner in Container	(863)
Analysis of Noise Caused by Motor Vibration in Indoor Unit of Air-Conditioning System	(870)
Design Optimization of Axial Flow Fan	(878)
The Research of Accuracy of Computational Acoustics Rooting in the Model Size of Wall-Mounted	
Air Conditioner	(884)
Influence of Vane End-Face in Rolling Piston Type Rotary Compressor on Oil Film Sealing	
Performance Based on Surface Wettability	(891)
Research on Energy-Saving Technical Specifications for Room Air Conditioner's Operation	(899)
Analysis of Heat Pump Air Conditioning System Based on LMS	(906)
Research and Application of Winding Temperature Estimation Technology for DC Frequency	
Compressor	(912)
Research on Non-Magnetic Steel Material Technology of Air Conditioner Compressor.....	(917)
Analysis of Influence Factors of Natural Frequency of Air Conditioning Sheet Metal	(923)
Study on the Wind Field in the Water Tray of Ceiling Air Conditioner.....	(929)
Condensation Simulation Analysis of an Integrated Air Conditioner	(934)
Research on the Application of Compact Small Diameter Evaporator in Split Air Conditioner	(940)
Study and Application of Acoustic Black Hole in Compressor	(944)
Development and Prospect of Multi-Online Intelligent Low-Carbon Operation	(951)
Research on the Application of Water Quantity Detection Technology of a Water Pumping Motor.....	(956)
The Influence of Different Evaporators on the Aerodynamic Performance of Double Cross Flow	
Air Conditioning	(960)
Application of Small Diameter Heat Exchanger in R32 Refrigerant Air Conditioner	(966)
Simulation Analysis and Optimization Design of Separation Characteristics of Outdoor Unit of	
Household Air Conditioner	(972)
A Study on Easy Disassembly in Wall-Mounted Air Conditioner	(978)
The Research and Application of Boost PFC Variable Carrier Frequency Control Technology	(983)
Reliability Analysis of Throttling of R290 Air Conditioner	(989)
Research on Temperature and Humidity Dual Control Function of Inverter Air Conditioner	(993)

Design and Application of Non-Reaming of Large Air Volume Fresh Air Installation Pipe.....	(997)
Research and Analysis on Improving the Reliability of Low Temperature Refrigeration of Air Conditioning	(1003)
Study on the Performance of CNT Based Phase Change Cold Storage Air Conditioning	(1007)
Research on Performance Upgrading of Cross Flow Fan System of Cabinet Machine	(1012)
Experimental Study on Anti-condensation of Low Temperature Fresh Air in Household Fresh Air Conditioning.....	(1017)
Research on Abnormal Noise for Air Conditioning Axial Flow Fan	(1023)
Research on Noise Improvement of Fan System Used in Fresh Air Conditioner	(1028)
Study on Reliability of Alloy Connecting Pipe for Air Conditioning	(1033)
Optimization of Air Conditioning Packaging Scheme Based on CAE+	(1038)
Study on Type Selection and Reliability of Aluminum Wire Compressor	(1046)
A Brief Discussion on Fresh Air Products and Technology of Household Air Conditioning in Japan.....	(1050)
Experimental Study on Improving Refrigeration Comfort of Inverter Window Air Conditioner	(1057)
Design and Control of New Electronic Expansion Valve for Air Conditioner	(1062)
Analysis and Research on Oxygen-Aeration Technology of Household Air Conditioner	(1070)
Design of a Method for Smart Home Appliances to Quickly Enter the Distribution Network State	(1076)
Research on Axial Flow Blade Design of Air Conditioner	(1080)
Research on Low Temperature Refrigeration Function of Air Conditioner.....	(1085)
Design And Implementation of Control Method of Central Air Conditioning Based on Improved LPL Protocol	(1088)
Design and Research of Double Output Buck Power Control System of Air Conditioning Controller	(1096)
Judgement and Optimization Analysis of Refrigerant Quantity in Variable Refrigerant Flow Systems	(1103)
Research on Chassis Thinning of Outdoor Unit of Air Conditioner Based on Finite Element Simulation.....	(1107)
Research and Application of Binocular Stereo Vision Image Processing in Central Air Conditioning Cleaning Robot	(1114)
A Control Strategy of Control Totem Tole PFC Converter Based on Input Voltage Feedforward and Zero Crossing Detection	(1123)
Research Progress of Chemical Micro-Foamed Polypropylene	(1133)
Study on Airflow Stability of Wall-mounted Air Conditioner	(1139)
Characteristic of Acoustic Metamaterial And Its Application in Noise Reduction of Ducted Type Air Conditioner	(1143)
Study on The Influence of Key Design Parameters on Heat Dissipation Performance of Air Conditioning Heat-sink	(1151)
CFD Simulation Analysis And Experimental Verification of Air Conditioner Condensation on Vertical Fan Coil Unit.....	(1157)
Research on Electrical Motor Polar Pairs for Air Conditioner Compressor	(1164)
Research on Performance Improvement of R32 Air Conditioning System Based on Variable Shunting Design	(1170)
Application Research on Auxiliary Bearings for Large-capacity Compressors	(1176)

Part 3 WASHING MACHINE TECHNOLOGY

Research on Adding Detergent Technology of Wall-mounted Drum Washing Machine Based on Venturi Principle	(1183)
Research on Washing Machine's Clothing Fabric Sensing Based on LDA and SVM Algorithms	(1188)
Research on Pulley-belt Resonance Noise of Washing Machine Based on Frequency Response Analysis.....	(1196)
Research on Refrigerant Leakage Detection and Protection Program of Heat Pump Dryer	(1204)
Design and Implementation of Heater for Clothing Care Machine	(1209)
Application of RFID Technology on Internet of Clothing and Formation of Standard	(1216)
Design of Process and Control System for Washing Machine Customization	(1222)
Application of Polymer Composites Counterweight on Front Load Washer Machine	(1227)
Thermal Analysis and Design Optimization of Fogging Inside the Control Panel of Washing Machine	(1232)
Analysis of Microbial Groups Insides Drum Washing Machine and Anti-mildew Tests for Material with Anti-mildew Agent	(1238)
Application of Involute Spline Drive on Front Load Washing Machine	(1245)
Effect of Steam Washing Technology on Properties of Protein Fiber Fabric.....	(1250)
Research on Finite Element Analysis of Impeller Type Washing Machine's Basket and Tub	(1255)
Research and Application of Nonlinear Simulation Technology of Front-Loading Washing Machine Door Seal	(1259)
Energy Consumption Problems and Optimization Suggestions of Household Laundry Equipment in Use Stage.....	(1264)
Polymeric Nanoparticle-Based Detergent Enhance the Washing Efficacy and Sanitize Washing Machine	(1271)
Research on Three-Dimensional Porous Polymer Semiconductor in Water Activation of Washing Machine	(1276)
Research on Flocks Filtration Technology of Drum Washing Machine Based on Circulatory System	(1281)
Deep Learning Algorithms Based Application of MEMS Temperature and Humidity Sensor in Domestic Clothes Dryers	(1288)
Effects of Domestic Washing and Drying Process on Waterproof Performance of Laminated Fabric.....	(1293)
Optimization Design for Key Structure of Brush Shoe Washing Machine	(1297)
Condensation Analysis and Anti Condensation Method of Heat Pump Dryer	(1302)
The Staged Heat Source Configuration of Hybrid Heating System on Drying Performance	(1306)
The Method and Research of Predictive Maintenance of Network Device	(1311)
Research on Vibration Analysis and Optimization of Washing Machine Bracket Structure	(1318)
A Method for Smart Sorting and Collection of Washing Machine Programs Based on TFT Screen	(1322)
Study on the Influence of Sealing Material of Drum Washing Machine on the Smell of Drum in Washing Machine	(1329)
Research and Application of Independent Fan Technology in Clothes Dryer	(1333)
Research on Reducing The Clothes Abration of Spining Distribute on Front Load Washing Machine	(1340)
Design of Encryption Scheme for Washing Machine Communication Module Based on Block	

Chain	(1344)
Thermopile Array Sensor Measurement Technology in the Application Research on Dryer	(1349)
Evaluation of the Test Method of Washing Machine Water Inlet Valve	(1354)
CFD Simulation Design of Heat Flow Performance of Washer-dryer Drying Tunnel	(1357)
Innovative Design of Filter Self-cleaning Heat Pump Clothes Dryer Based on TRIZ Theory.....	(1361)
A Novel Solution for Lint Issue in Drying Process: Self Cleaning Lint Separator	(1372)
On the Lightweight Design of Motor End-bracket Structure and Its Influence on Noise of Ripple Washing Machine	(1376)
Research and Application of Self Filtration Cleaning Technology	(1381)
Analysis on the User Demand and Future Development Trend of Electric Clothes Dryer	(1385)
Research on Dynamic Properties of Gasket of Front Loading Washing Machine	(1389)
Analysis and Simulation of Washing Machine Double Inverter Controller System	(1397)
Design and Experimental Research on Operational Performance of Heat Pump Dryer	(1402)
CAE Analysis of Front Loading Washing Machine Pulley	(1407)
Optimization and Application of Double-drum Washing Machine Vibration System	(1412)
Analysis and Exploration of Residual Water in Siphon Structure of Laundry Detergent.....	(1418)
Research and Industrialization of an Automatic Leveling Apparatus for Washing Machine	(1422)
Drop Simulation Analysis and Packaging Optimization of Pulsator Washing Machine	(1428)

Part 4 KITCHEN APPLIANCE TECHNOLOGY

Analysis and Control of Output Ripple Noise of Switching Power Supply	(1437)
Numerical Simulation Study on the Influence of Smoke Collecting Cavity Structure on Exhaust Efficiency of Range Hood	(1443)
Noise Analysis and Optimization of Range Hood Cleaning Module	(1447)
Study on Effect of Air Inlet Shape on Smoking of Range Hood	(1454)
The Analysis Research of Range Hood Air Inlet Location's Effect on Fume Exhausting Efficiency.....	(1459)
Comparison of Noise Performances for Single Inlet and Double Inlet Fans of Range Hood.....	(1466)
Optimization Design of Volute Structure of Range Hood Based on Drop Simulation	(1472)
Optimized Design for Range Hood Packaging Based on Drop Simulation	(1477)
Study on Smoke Recognition of Range Hood Based on Neural Network Model Learning Algorithm	(1486)
Study on the Influence of the Air Inlet Area and Inlet Area of the Oil Network on the Air Volume and Noise of the Hood Oil Network	(1490)
The Improvement of Smoke Escape by the Air Curtain System of Range Hood	(1494)
Application of Improved Flux Observer in DC Variable Frequency Range Hood	(1502)
Mechanical Analysis of Spring in Hinge of the Embedded Large Oven Based on the UG Software	(1509)
Simulation Analysis of Thermal Stress Distribution Based on Glass Door of Oven.....	(1515)
Study on the Retention of Chlorogenic Acid in Eggplant by Microwave/Roasting Combined Heating.....	(1522)
Study on Releaser of Micro Bubble Water	(1526)
Application of Intelligent Fume Control Purification Technology on Steam Oven.....	(1531)
Effect of Nozzle Installation on Burner Status	(1536)
Study on the Quality Change of Cookies During Baking	(1541)
Analysis and Research on Improving Temperature Rise of Electric Oven Motherboard Based on Fluent	(1545)
CFD Study of Convective Heat Transfer Process in the Dishwasher Cavity	(1550)

Drop Simulation of Molded Paper Pulp for Microwave Oven.....	(1556)
Effects of Different Blanching Methods on the Quality of Shrimp	(1562)
Parameterized Design and Optimization of Multi-Blade Centrifugal Fan	(1566)
Research on the Improvement and Application of Water Flow Distribution Valve Technology in Dishwasher	(1571)
Design of Voice Control Software Based on Intelligent Range Hood	(1576)
Research on Reliable Application of TFT in Kitchen Electric Products	(1582)
Technology and Application of Internet Chronic Disease Management System Based on IoT Home Appliances	(1586)
An Automated Test Method for Full-Duplex Speech Based on Android Platform.....	(1591)
Realization and Application of an Intelligent Temperature Measurement System Based on Wireless Transmission	(1596)
Multi-View Reconstruction Technology of Food in Ovens with Monocular Cameras	(1602)
Research on Design and Implementation of Baking Knowledge Intelligent Question Answering System	(1607)
Study on Improving the Uniformity of Braised Pork with Soy Sauce by Microwave Reheating.....	(1613)
Structural Strength Calculation and Optimization Analysis of Sheet Metal Parts of Hoods	(1617)
The Improvement of Noise by Structure Optimization of The Cochlear Tongue of Range Hood is Discussed.....	(1621)
Application of High Power Hotplate Burner on Freestanding Oven	(1626)
Effect of Different Centrifugal Fans with Various Numbers of Blades on The Performance of A Range Hood.....	(1631)
Effects of Different Reheating Methods on The Quality of Frozen Steamed Breads	(1638)
Study on Technology of Cooking Chicken Nuggets in Air-Frying Oven	(1643)
Effects of Formula and Cooking Method on the Cooking Quality of Egg Tarts.....	(1648)
Dynamic Simulation Analysis of Microwave Interlocking System.....	(1653)
Research and Development of Hydrogen Enriched Natural Gas Type Three-burner Domestic Gas Cooker	(1660)
Heating Optimization of Separated Electric Cooker Based on Orthogonal Test	(1666)
Research and Application of Cooking Process Curve Based on Smart Oven	(1671)
Design and Implementation of Intelligent Cloud Recipe One-button Cooking Technology	(1676)
Effects of Different Steaming Conditions on Anthocyanins in Eggplant	(1681)
Modal Optimization Simulation of The Built-in Microwave Oven Sealing Ring Based on Workbench.....	(1684)
Research and Application of Humidity Control Technology in Steaming Ovens	(1689)
Application of Camera on Smart Oven	(1696)
Numerical Study on Heat Transfer Process and Energy Consumption Load Distribution of Dishwasher	(1702)
Research on Boiling Time Prediction of Water in Pot Based on Few-shot Learning	(1711)
Structure and Control Method of the Cleaning System for a Range Hood.....	(1716)
Research on the Adjustment and Control Method of the Effect of Range Smoke in Different Cooking States of Range Hoods under Different Floor Resistance	(1722)
Test Method for Smoking Exhausting Effect under Simulated Users'Actual Working Conditions.....	(1730)
A Test Method for Pressure Resistance of Flue Tube Of Range Hood	(1736)
Application Research on Product Development Based on Simulink Oven Model	(1740)

Study on Washing Mechanism of Single-jet Nozzle in Dishwasher	(1745)
Research on Influencing Factors of Tea Washing of Dishwashers Based on Apriori	(1750)
Intelligent Cleaning Reminder Method for Range Hood Based on Odor Detection	(1758)
Study on the Influence of Ignition Pin Discharge Characteristics of Gas Stove	(1763)
Application of BLDC Back Pressure Feedback System on the Range Hood	(1767)
Design Solution Improvement and Implementation of the Fixing Method of the Shaft and Crank of the Gear Motor of the Cooker Hood Based on the DRBFM Method	(1771)
Research Progress in the Purification Technology of Typical Odor Gas Trimethylamine in Household Appliances	(1777)
Analysis of Harmonic Current Rectification and Standard Interpretation of Commercial Inverter Mmicrowave Oven	(1783)
Research on the Heat Load Change of the Fully Up Intake Air Household Gas Cooker	(1793)
Analysis and Improvement of Gas Stove Battery Temperature Rise	(1800)
Analysis of Antioxidant Activity and Taste Change of Yam Steamed by Gas Stove	(1804)
Research and Design of Static Water De-bacterization Scheme for Electric Steamer	(1810)
Research on Technology for Improving Dishwasher Spray Coverage	(1814)
Research and Application of Disinfection and Sterilization Technology for Dishwasher	(1818)
Quantitative Analysis of the Escaping Volume of Oil Fume Based on PIV and Image Processing Technology	(1823)
Study on the Influence of Heat Insulation Structure on the Accuracy of Stoves to Prevent Dry Burning	(1829)
Study the Influence of Different Cooking Temperature and Cooking Methods on Quality of Beef Steak	(1833)
Experimental Research and Simulation Optimization on Temperature Field of Uniform Gas Stove	(1838)
Optimization Design of 3D Concave and Convex Volute Tongue in Multi-blade Centrifugal Fans	(1842)
Mechanism Study on the Influence of Synthetic Jet on the Thermal Efficiency of Cooker-Top Burner	(1851)
Orthogonal Design and Numerical Simulation of New Anti-Guide Vane for Dishwasher Washing Pump	(1859)
Package Design and Optimization of Big Oven for Ultimate Container Loading Quantity	(1867)
Influence of Porous Flow Adjusted Structure Thickness Parameters on Distorted Inf low Caused By Narrow Channel	(1875)
Optimization Design of Multi-blade Centrifugal Fan Based on Acoustic-vibration Coupling	(1883)
Research on the Influence of the Size of the Range Hood Shell on the Air Volume Based on the Mesh Deformation Method	(1889)
Research and Practice on Modeling of Noise Quality of Range Hood	(1897)
Research on Improving Thermal Comfort of Kitchen Based on Integrated Cooking Appliances	(1904)
Study on the Uniformity of Shielding Gas for Welding Device of an Embedded Kitchen Appliance	(1915)
Research of Improved Canny Image Segmentation Algorithm	(1923)
Structural Design and Optimization Research on Installation Structure of Camera Unit of Combi-oven	(1928)
Smoking Performance Analysis of Double-flue Integrated Stove and Its Structural Optimization Design	(1933)
Research and Application of Forced Convection in Integrated Oven on Baking Effect	(1941)

Optimal Design of the Water Inlet of a Washing Pump for an Ultra-high Water Circuit	(1945)
Prediction Model of Dishwasher Cleaning Index Based on BP Neural Network	(1950)
Research on Oil Circuit Problem of Integrated Stove Bellows System Based on TRIZ Theory	(1955)
Research on Defects of Gas Stove Flameout Based on TRIZ	(1963)
Designed and Applied on Ultra-thin Tange Hoods Based on TRIZ	(1971)
Study on the Influence of Different Structural Door Seals on the Door Seal Performance of the Integrated Machine.....	(1977)
Design and Application of Terminal Data Simulation Software Based on Paho MQTT	(1982)
Analysis on the Distinction and Definition of “Free From Sharp Edges” in the Internal Wireways	(1987)
Cleanine Performance Test and Research of Dishwasher	(1991)
Study on the Plateau Model of the Steam Box.....	(1995)
Study on the Limit Input Voltage of DC-DC Converter for Kitchen Electrical Products	(2000)
Design of Stoving Appliances for the Elderly Based on Users Scenarios	(2006)
Aerodynamic Performance Optimization and Noise Reduction of Check Valve Based on Single-Inlet Multi-Blade Centrifugal Fan	(2013)
Simulation Design and Experimental Benchmarking of Dishwasher Circulating Pump	(2019)
Application of a New Dry Burning Prevention Technology for Gas Stove	(2023)

Part 5 OTHER APPLIANCES RELATED TECHNOLOGY

Research on Anti-entanglement Technology of Brush of Cleaning Robot	(2031)
Experimental Research of R290 Refrigerant on Dehumidifiers	(2041)
Research on Dust Collection System of Sweeping Robot Base Station	(2045)
Package Drop Simulation of Gas Water Heater Based on HyperWorks / RADIOSS	(2050)
Speed Regulation Technology of Single-phase Asynchronous Motor Based on H-bridge AC Chopper Voltage Regulation	(2056)
Cost-reducing Design of Electric Water Heater Packaging Based on Drop Simulation	(2061)
Study on System Optimization Based on Dynamic Simulation Model of Closed-loop Heat Pump Clothes Dryer	(2067)
Research on Low Speed Grinding Technology	(2073)
Descaling Design of The Steam Generator for Ironing Products	(2080)
Research on Infrared Temperature Measurement Technology of Induction Cooker	(2085)
Study on Function Requirement of Outdoor Heating Water Cup Based on Kano Model	(2089)
Research on Strong Bypass Fin Heat Exchanger for Gas Heating Furnace	(2095)
Experimental Research on the Application of Phase Change Heat Storage Materials in Electric Water Heaters	(2099)
Influence on Hot Water Quantity of Electric Water Heater by Different Heating Structures	(2106)
Discussionon Raising Total Hot Water Volume of Electric Water Heater	(2110)
Principle Analysis And Research of A Fully Automatic Rice Cooker for Rice Washing	(2114)
CFD Study of Combustion in Gas Water Heater	(2117)
Research on Application of AC Frequency Conversion Fan in Induction Draft Gas Water Heater	(2125)
Discussion on The Influence of Sectional Mode on The Constant Temperature Performance of Gas Water Heater	(2130)
Research on Comprehensive Performance of Australian Standard Gas Water Heater	(2134)
Application of High-Strength Plate on Inner Tank of Electric Water Heater	(2138)

Study on High Efficiency Sterilization Module And Antibacterial Material of Activated Carbon Water Purification Filter	(2143)
Hot Water Temperature and Energy Efficiency of Air Source Heat Pump Water Heater	(2147)
Study on Hydrogen-doped Natural Gas of Premixed Gas Water Heater	(2151)
Study on the Preparation Technology of Minced Meat Infant Complementary Food	(2156)
Application of Cold Hard Plate in Shell of Electric Storage Water Heater	(2162)
Dry Fan Motor Running Control Analysis of Drum Washer-Dryer Machine	(2167)
Temperature Control Method of Hybrid Power Electric Water Heater Based on Improved PID Algorithm	(2171)
Numerical Simulation of the Effect of Structural Parameters of Ejector of Burner Element on the Primary Air Coefficient	(2179)
Shoes Materials Classification Based on Deep Learning	(2183)
Study on Noise Mechanism for Gas Water Heater	(2188)
Application of Wind Pressure Sensor on Gas Water Heater	(2202)
Research on the Development Trend of Floor	(2207)
Cleaner Germ Removal Technologies	(2207)
Study on Dedusting Mechanism of Vacuum Cleaner on Carpet	(2213)
Mechanism Research of Resistance Reduction and Efficiency Promotion on Cordless Vacuum Cleaner	(2219)
Drop Test and Simulation Optimization of Vacuum Cleaner	(2227)
Application of Aerodynamic Noise Reduction in Gas Water Heater Based on CFD Technology	(2233)
Analysis of Vibration and Noise Reduction of Water Purifier with Suspended Pump	(2238)
Experiment and Optimization of Flame Propagation Performance of Gas Water Heater	(2246)
Application of DFMA Technology in Cost Reduction Design of High Energy Efficiency Electric Water Heater	(2250)
Application Research of Magnetic Filter in Heating Pipeline	(2255)
Study on the Power Plug of Fire Prevention of Electrical Storage Water Heater	(2262)
Study on Refrigerant Leakage Safety of R290 Heat Pump Water Heater	(2270)
Application of Antibacterial and Mould Proof Silicone Rubber in Rice Cookers and Cooking Utensils	(2280)
The Study on the Application and Properties of Negative Ions Used in Electrostatic Purifier	(2285)
Study on the Effect of Electric Pressure Cooker Stewing Process on the Quality of Pork Belly	(2290)
Study on the Process of Removing Fat and Its Effects on the Quality of Chicken Soup	(2302)
Research and Analysis of Influence of Differential Mode Inductance with Air Gap on Conducted Interference Performance of Household Appliances	(2307)

Part 6 COMPREHENSIVE TYPE

Design of Residual Voltage Test Method and Improvement Scheme	(2319)
Personalized Parameter Configuration System Based on Smart Products	(2322)
Research on Radar Ranging Based on Two-frequency Phase Method	(2327)
Simulation Analysis and Improvement of End Effect of Permanent Magnet Radial Field Motor	(2333)
Research on Miniaturization of Convolutional Neural Network Model Based on Food Recognition	(2339)
Food Detection and Recipe Recommendation in Open Scenarios	(2344)
Spare Parts Development and Value in Product Life Cycle	(2349)

The Construction of Whole Life Cycle Management Process System and System Implementation	
Plan of Smart Scene in The Field of Smart Home	(2353)
The Effects of The Parallelism of Connecting Rod on The Wear of Refrigerator Compressor	(2358)
Analysis and Reduction of Motor Loosening Noise	(2363)
Research on Contribution Analysis of Refrigerator System's Noise Transmission Path	(2367)
Application of Halbach Magnetic Ring in Fractional Slot Concentrated Winding Permanent Magnet Synchronous Motor	(2378)
Development and Application of Hot Water Control System Based on Bathroom Scene	(2383)
Failure Analysis and Reliability Improvement of Electromagnetic Relay	(2387)
Research on Causes and Improvement Measures of Sharp Edges of Home Appliances	(2393)
Review on Reducing the Glycemic Index Value (GI) of Starch Products Based on Food Processing Technology	(2401)
Evaluation of Rusty Motor Based on Color Identification	(2405)
Progress in the Flexibility Research of Domestic Gas Appliances to Hydrogen-Enriched Natural Gas	(2411)
Experimental Study on Curing Reaction of PUR Hot Melt Adhesive Under High Temperature	(2419)
Experimental Analysis on the Influence of Different Heaters on Electronic Anode	(2429)
Multidimensional Methodology to Achieve Substantial Cost Reduction	(2433)
Simulation Research on Main and Eccentric Bearings of Reciprocating Compressor	(2440)
Auto-AI Simulation Solution in Packaging Cost Reduction of Household Appliance	(2446)
Performance, Cost Advantage and Development of Plastic-encapsulated Motor	(2453)
Highly Effective Antibacterial HIPS Materials with Balanced Toughness and Stiffness	(2458)
Research on Automatic Development Platform of Intelligent Appliance APP	(2462)
Research on Family Health Guidance Based on Dynamic Knowledge Graph	(2468)
Discussion on Leakage Current Testing Method and Principle	(2477)
Research and Application of Intelligent Voice Technology in Water Heater	(2480)
Research on Experience Measurement Methods in the Era of Big Data	(2484)
Effects of Different Lubricants on the Performance of R290 Compressor	(2489)