

# 汽车实用技术

AUTOMOBILE APPLIED TECHNOLOGY

## 新能源汽车实时监控

终端设计要点 P1

基于模糊PID的汽车巡航控制系统研究 P19

## 基于仿真的城市交叉口

直行待行区的研究与优化设计 P25

## “气顶液”制动系统中

加力增压器性能的应用 P85

复合喷丸强化工艺的应用  
P153

汽车灯光系统故障诊断与检修  
P174

汽车检测与维修专业“课程思政”探究  
P197

基于强矩阵组织的汽车开发项目管理研究  
P220

汽车安全性介绍  
P233



WWW.AUTOMANNET.COM

邮发代号: 52-275

ISSN 1671-7988



加官方微信  
扫描二维码



第45卷 2020年 第24期  
总第327期

### 新能源汽车

- 新能源汽车实时监控终端设计要点 ..... 胡舟宇 李媛媛 Naikai Du (1)
- 电子制动系统在新能源商用车上的应用 ..... 李文倩 王晓辉 王峰等 (4)
- 新能源BMS控制策略探讨 ..... 翟东风 李济禄 张早年等 (6)
- 纯电动汽车道路滑行阻力试验影响因素浅析 ..... 熊福明 崔川扬 黄俊 (8)
- 新能源汽车发展现状及趋势 ..... 徐燕 (13)
- 某纯电动多用途货车整车EMC性能攻关 ..... 王雅莉 (16)

### 智能网联汽车

- 基于模糊PID的汽车巡航控制系统研究 ..... 张宝玉 (19)
- 浅谈自动驾驶汽车环境感知系统在冬季面临的挑战 ..... 何俊南 郭瑞玲 吴昊等 (22)

### 设计研究

- 基于仿真的城市交叉口直行待行区的研究与优化设计 ..... 侯露露 (25)
- 浅析油电共用的乘用车布置方案 ..... 姜永胜 张士金 赵康波 (29)
- FSAE赛车链传动系统的设计与仿真分析 ..... 刘明 朱瑞峰 乔晓亮 (31)
- 汽车座椅横梁轻量化设计方法研究 ..... 白久凯 王小东 (36)
- 自动变速器的挡圈设计 ..... 毕崇盛 关崑 柴召朋等 (38)
- 校车主动式安全气囊包形参数优化设计 ..... 陈琦 王莹 (41)
- 高楼层楼口可自动装卸垃圾系统 ..... 戴宏伟 王雄志 方灯等 (45)
- 连续变化信号的方向识别 ..... 丁麟 夏洪彬 王建勋等 (48)
- 一种摩天轮地空停车场装置 ..... 傅成祥 魏红梅 李锋 (50)
- 一种压力开关疲劳寿命测试系统 ..... 关波 (53)
- 变速器压力调节阀油路通断节流设计研究 ..... 郝凯敏 严思敏 龙彬等 (55)
- 关于动力总成试验台架集成小车解析 ..... 秦奋 程双安 郭海乐等 (58)
- 浅谈喷涂室循环风空调的设计要求 ..... 张辉 申标 张五青等 (61)
- 基于ADRC算法的Ibooster电子助力器综合性能检测系统 ..... 赵静 郭斌 孙正等 (64)
- 主动进气格栅 (AGS) 的技术研究及应用 ..... 王升山 曾志嵘 高少俊等 (69)
- 探究汽车电子控制系统单元架构的实现路径 ..... 郭辉 雷慧芳 (71)
- 全路面附着系数的EPS系统控制策略研究 ..... 何杰 (73)
- 某轻型客车前保险杠结构设计分析 ..... 洪培良 (78)
- 某商用车加减速啸叫问题分析及优化 ..... 黄锋 曾小春 王毅等 (80)
- 自动变速器离合器故障诊断与故障处理策略研究浅析 ..... 王惠 丁麟 方立辉等 (83)

### 测试试验

- “气顶液”制动系统中加力增压器性能的应用 ..... 曹君 (85)
- 几款发动机排气道对比分析 ..... 夏美艳 (88)
- 基于Cruise的整车动力经济性优化分析 ..... 肖波 徐磊 袁进 (92)
- 双离合变速器预换挡工况传动效率试验研究 ..... 张传奎 张伟 樊嘉坤 (96)
- 发动机无法起动综合性实验设计 ..... 张忠洋 (99)
- 某电控液驱悬架参数对行驶稳定性的影响研究 ..... 朱晓基 王强 何晓晖等 (101)
- 关门速度对汽车声品质的影响研究 ..... 刘邦雄 黄佳雯 刘林根 (105)
- 汽车ABS试验轮速信号异常值的识别和处理 ..... 杨刚 尚志诚 钟欣 (108)
- 某重载排半轻卡驾驶室安全性能理论仿真与试验研究 ..... 邓辉辉 樊华春 何帆影等 (111)
- 某双排轻卡驾驶室结构力学性能仿真研究 ..... 郭浩 黄勤 孙丽娟等 (114)
- 基于RecurDyn的2K-V型减速机回差仿真研究 ..... 韩林山 魏征 温泉等 (117)
- 8AT液压特性试验测试研究 ..... 李晓龙 王君 武庆震等 (120)
- 某轻车型加速异响问题排查分析 ..... 刘世海 黄幼林 (123)
- 某气制动车型空压机噪声问题解决 ..... 饶文明 林圣镇 钟秤平等 (126)
- 基于有限元法的某双排轻卡驾驶室安全性能仿真研究 ..... 杨会华 王莉 潘开广等 (130)

特种车辆动力总成橡胶悬置仿真方法研究 ..... 杨立宁 高佳瑜 方文华 等 (133)  
 增压直喷汽油发动机控制参数对排放影响的分析 ..... 张冬冬 (137)  
 发动机在环一致性与真实性研究 ..... 郑春芳 李腾腾 汪晓伟 等 (139)  
 某自动变速器车型熄火问题分析及解决 ..... 葛玉霞 (144)

## 材料与涂装

汽车顶棚常见VOC不合格问题原因剖析与改善 ..... 付鑫 李海青 郭秋彦 等 (147)  
 浅谈喷涂废气处理系统的设计与技术质量要求 ..... 孙自松 张辉 申标 (150)

## 工艺装备

复合喷丸强化工艺的应用 ..... 管金玲 马宁 李俊豪 (153)  
 螺纹紧固件摩擦系数对拧紧质量影响的研究 ..... 徐海东 魏鹏程 (156)  
 大客车侧围蒙皮冷张拉设备自锁紧夹具的研究与应用 ..... 高建路 (160)  
 铝合金高真空压铸减震器塔成型工艺方案设计研究 ..... 唐程光 唐淳 阙洪贵 (163)  
 基于铝合金减震器塔的钢铝连接设计及验证 ..... 鲁后国 赵震 阙洪贵 等 (168)  
 某种车身铝合金高真空压铸减震器塔成型分析研究 ..... 刘江波 张顺 (171)

## 使用维修

汽车灯光系统故障诊断与检修 ..... 郭磊 (174)  
 迈腾B7L车辆车门故障案例分析 ..... 夏继伟 (177)  
 JF015E自动变速箱维修案例分析 ..... 杨冰 (179)  
 新能源汽车电控系统电磁干扰故障分析与检修方法 ..... 苏超杰 (182)  
 降低气门导管座圈返工新方法 ..... 韩伟 鲁文章 陆勇 (185)  
 装载机起动系统常见故障分析及排查方法 ..... 黄成磊 张宏春 (189)  
 1+x证书下汽车运用与维修专业探究与实践 ..... 江传玉 张元青 王建 等 (191)  
 北汽EV200纯电动汽车低压系统不能充电故障诊断与排除 ..... 彭小伟 黄华 (194)

## 汽车教育

汽车检测与维修专业“课程思政”探究 ..... 李清 (197)  
 汽车营销与服务专业建设发展改进研究 ..... 刘彦笈 吴雅莉 (200)  
 汽车空调课程实验项目设计 ..... 高宇 (203)  
 汽车专业校企合作模式及人才培养方式的探究 ..... 闫永 周波 胡燕 (205)  
 论汽车营销与服务专业《汽车发动机结构与原理》课程改革 ..... 李志艳 (208)  
 线上线下混合教学模式在《汽车电子》课程中的应用 ..... 孙栋梁 朱玉春 陈睿炜 (210)  
 基于OBE理念的高职汽车智能技术专业课程体系的构建 ..... 杨旭志 廖中文 简浩钧 (213)  
 融入创新6S管理理念的汽车发动机拆装教学 ..... 原平 (215)  
 基于可视化学习的汽车故障诊断课程的微课资源的开发与应用研究 ..... 张亚飞 (217)

## 标准·法规·管理

基于强矩阵组织的汽车开发项目管理研究 ..... 赵伟鹏 朱凯庆 陈文都 (220)  
 以技术管理为中心的“两客一危”道路运输车辆新型管理结构设计 ..... 陆璐 (224)  
 重型柴油车国六SCR技术概述 ..... 申成振 (228)  
 浅谈试验问题监控表在可靠性试验过程中的应用 ..... 刘秀芝 代璞丰 韦巍 (231)

## 综述

汽车安全性介绍 ..... 毛明哲 王丽 (233)  
 新型减振器的研究现状及发展趋势 ..... 雷先华 刘湘 刘翔婷 (236)  
 大众MQB平台底盘演变解析 ..... 赵康波 姜永胜 张士金 (240)  
 锯齿形和波纹形板翅式换热器研究现状 ..... 来振 郭朋彦 张瑞珠 等 (242)

## 广告索引

西安特锐德领充新能源科技有限公司 ..... 封二  
 《汽车实用技术》杂志征稿启事 ..... 封三  
 陕汽集团商用车有限公司 ..... 封底

## New Energy Vehicle

- Real-Time Monitoring Terminal Design for New Energy Vehicle ..... Hu Zhouyu, Li Yuanyuan, Naikai Du (1)  
Application of electronic braking system in new energy commercial vehicle ..... Li Wenqian, Wang Xiaohui, Wang Feng, et al (4)  
Discussion on New Energy BMS Control Strategy ..... Zhai Dongfeng, Li Jilu, Zhang Hannian, et al (6)  
Analysis of the Influence Factors of Pure Electric Vehicle Road Coast Test ..... Xiong Fuming, Cui Chuanyang, Huang Jun (8)  
Development status and trends of new energy vehicles ..... Xu Yan (13)  
Research on EMC performance of a pure electric multipurpose truck ..... Wang Yali (16)

## Intelligent Connected Vehicle

- Research on Automobile Cruise Control System Based on Fuzzy PID ..... Zhang Baoyu (19)  
Discussion on the Challenges of Environmental Perception System of Automatic Driving Vehicles in Winter  
..... He Junnan, Guo Ruiling, Wu Hao, et al (22)

## Design and Research

- Research and optimal design of straight awaiting traveling area at urban intersection based on simulation ..... Hou Lulu (25)  
Analysis on the Layout Plan of Passenger Cars Shared by Oil and Electricity ..... Jiang Yongsheng, Zhang Shijin, Zhao Kangbo (29)  
Design and Simulation Analysis of FSAE Racing Chain Drive System ..... Liu Ming, Zhu Ruifeng, Qiao Xiaoliang (31)  
The Study on the Lightweight Design Method of The Seat Crossmember Of a Car ..... Bai Jiukai, Wang Xiaodong (36)  
The Design of Snap Ring for Automatic Transmission ..... Bi Chongsheng, Guan Wei, Chai Zhaopeng, et al (38)  
Parameter Optimization for the Shape of School Bus Active Airbag ..... Chen Xun, Wang Ying (41)  
Automatic Garbage Loading and Unloading System at the Entrance of Highrise Building  
..... Dai Hongwei, Wang Xiongzhi, Fang Deng, et al (45)  
Direction Detect of Continuous Signal ..... Ding Lin, Xia Hongbin, Wang Jianxun, et al (48)  
Ground and Empty Parking Lot Device for Ferris Wheel ..... Fu Chengxiang, Wei Hongmei, Li Feng (50)  
Pressure Switch Fatigue Life Testing System ..... Guan Bo (53)  
Research on the Design of Transmission Pressure Control Valve Oil Circuit on-off Throttling ..... Hao Kaimin, Yan Simin, Long Bin, et al (55)  
Analysis on Powertrain Test Bench Integrated Trolley ..... Qin Fen, Cheng Shuang'an, Guo Haile, et al (58)  
Brief Introduction to the Design Requirements of Circulating Air Conditioning in Spraying Room  
..... Zhang Hui, Shen Biao, Zhang Wuqing, et al (61)  
Integrated Performance Testing System of Ibooster Electronic Booster Based on ADRC Algorithm ..... Zhao Jing, Guo Bin, Sun Zheng, et al (64)  
Research and application of AGS Technology ..... Wang Shengshan, Zeng Zhirong, Gao Shaojun, et al (69)  
Explore the realization path of automotive electronic control system unit architecture ..... Guo Hui, Lei Huifang (71)  
Research on EPS system control strategy of full road adhesion coefficient ..... He Jie (73)  
Analysis on the structure design of the front bumper of a light passenger car ..... Hong Peiliang (78)  
Analysis and optimization of timing chain whine during acceleration and deceleration of a commercial vehicle  
..... Huang Feng, Zeng Xiaochun, Wang Yi, et al (80)  
Analysis of Coastdown Control for Automatic Transmission with One-way Clutch ..... Wang Hui, Ding Lin, Fang Lihui, et al (83)

## Testing and Experiment

- Application of Supercharger Performance in "Air Top Liquid" Brake System ..... Cao Jun (85)  
Comparative Analysis of Exhaust Ports of Several Engines ..... Xia Meiyuan (88)  
Cruise-based Optimization Analysis of Vehicle Power Economy ..... Xiao Bo, Xu Lei, Yuan Jin (92)  
Experimental Study on Transmission Efficiency of Dual Clutch Transmission in Pre-shift Condition  
..... Zhang Chuanxi, Zhang Wei, Fan Jiakun (96)  
Comprehensive Experimental Design of Engine Failure to Start ..... Zhang Zhongyang (99)  
Research on the Influence of Suspension Parameters on Driving Stability of an Electronically Controlled Hydraulic Drive  
..... Zhu Xiaoji, Wang Qiang, He Xiaohui, et al (101)  
Research On the Influence of Closing Speed on Sound Quality of Automobile ..... Liu Bangxiong, Huang Jiawen, Liu lingen (105)  
Identification and Treatment of Abnormal Values of Wheel Speed Signals for Automobile Anti-lock Braking  
..... Yang Gang, Shang Zhicheng, Zhong Xin (108)  
Simulation theory and experimental study on safety performance of a heavy duty semi light truck cab  
..... Deng Huihui, Fan Huachun, He Fanying, et al (111)  
Simulation study on mechanical properties of a commercial double row light truck cab ..... Guo Hao, Huang Qin, Sun Lijuan, et al (114)  
Simulation study of 2K-V reducer reversal based on RecurDyn ..... Han Linshan, Wei Zheng, Wen Quan, et al (117)  
The Study on The Test of 8AT Hydraulic Characteristics ..... Li Xiaolong, Wang Jun, Wu Qingzhen, et al (120)  
Investigation and Analysis of abnormal acceleration noise of a Light Truck ..... Liu Shihai, Huang Youlin (123)  
Research on Accelerating Roar of a Light Truck ..... Rao Wenming, Lin Shengzhen, Zhong Chengping, et al (126)  
Simulation Study on the Safety Performance of a double row Cab of Light Truck with FEM  
..... Yang Huihua, Wang Li, Pan Kaiguang, et al (130)  
Research on powertrain rubber mount simulation Analysis Method for a Special Vehicle ..... Yang Lining, Gao Jiayu, Fang Wenhua, et al (133)  
Analysis of the Influence of Control Parameters of Supercharged Direct Injection Gasoline Engine on Emissions ..... Zhang Dongdong (137)

- Study on the Consistency and Authenticity of Engine-in-Loop ..... Zheng Chunfang, Li Tengting, Wang Xiaowei, et al (139)  
Analysis and solution of stall problem of Automatic Transmission Vehicle ..... Ge Yuxia (144)

## Materials and Coating

- Analysis and Improvement of Common VOC Disqualification Problems in Automobile Ceiling  
..... Fu Xin, Li Haiqing, Guo Qiuyan, et al (147)  
Design and technical quality requirements of spray paint waste gas treatment system ..... Sun Zisong, Zhang Hui, Shen Biao (150)

## Process and Equipment

- Application of Compound Shot Peening Technology ..... Guan Jinling, Ma Ning, Li Junhao (153)  
Research on the Influence of Friction Coefficient of Threaded Fasteners on Tightening Quality ..... Xu Haidong, Wei Pengcheng (156)  
Research and Application of Self-locking Fixture for Cold Tensioning Equipment of Bus Side Panel ..... Gao Jianlu (160)  
The Study on forming process design of aluminum alloy high vacuum die casting shock tower ..... Tang Chengguang, Tang Chun, Kan Honggui (163)  
Design and verification of steel-aluminum connection based on Aluminum Alloy Shock Absorber Tower  
..... Lu Houguo, Zhao Zhen, Kan Honggui, et al (168)  
Study on the relationship between composition and properties of aluminum alloy high vacuum die casting materia  
..... Liu Jiangbo, Zhang Shun (171)

## Use and Maintenance

- Fault Diagnosis and Maintenance of Automobile Lighting System ..... Guo Lei (174)  
Case Analysis of Magotan B7L Vehicle Door Failure ..... Xia Jiwei (177)  
Analysis of a Repaire Case For JF015E Transmission ..... Yang Bing (179)  
New Energy Vehicle Electronic Control System Electromagnetic Interference Fault Analysis And Repair Method ..... Su Chaojie (182)  
New method to reduce rework of valve guide seat ..... Han Wei, Lu Wenzhang, Lu Yong (185)  
Common fault analysis and troubleshooting of loader starting system ..... Huang Chenglei, Zhang Hongchun (189)  
Exploration and practice of automobile Application and Maintenance under 1+X certificate  
..... Jiang Chuanyu, Zhang Yuanqing, Wang Jian, et al (191)  
Diagnosis and Troubleshooting of The Fault That The Low-voltage System of BAIC EV200 Battery Electric Vehicle  
Cannot Be Charged ..... Peng Xiaowei, Huang Hua (194)

## Automobile Education

- “Curriculum Ideology And Politics” Explore with Vehicle Inspection And Maintenance Professional ..... Li Qing (197)  
Research on the Development and Improvement of Automobile Marketing and Service Specialty Construction ..... Liu Yanji, Wu Yali (200)  
Experimental Project Design of Automobile Air Conditioning Course ..... Gao Yu (203)  
Probe into the School-Enterprise Cooperation Mode and Talent Training Method of Automobile Speciality  
..... Yan Yong, Zhou Bo, Hu Yan (205)  
On the course reform of Automobile Engine Structure and Principles for Automobile Marketing and Service Majors ..... Li Zhiyan (208)  
The Application of Blended Teaching Method in the Course of The Automotive Electronics ..... Sun Dongliang, Zhu Yuchun, Chen Ruiwei (210)  
Construction of Course System of Automobile Intelligent Technology Specialty in Higher Vocational College Based on OBE Concept  
..... Yang Xuzhi, Liao Zhongwen, Jian Haojun (213)  
The teaching of disassembly and assembly of automobile engine integrated with 6S management philosophy ..... Yuan Ping (215)  
Development and Application of Microcourse Resources for Automobile Fault Diagnosis Course Based on Visual Learning ..... Zhang Yafei (217)

## Standards Regulations Management

- Research on Application of Strong Matrix Organization in Auto Development ..... Zhao Weipeng, Zhu Kaiqing, Chen Wendu (220)  
New Management Structure Design of "Two Kind of Buses&The Vehicles Carrying Dangerous Goods"  
Transportation Vehicles Centered on Technology Management ..... Lu Lu (224)  
Scr Technology Of Diesel Fuelled Heavy-Duty Vehicles ( China VI ) ..... Shen Chengzhen (228)  
Application of test problem monitoring table in reliability test ..... Liu Xiuzhi, Dai Pufeng, Wei Wei (231)

## Overview

- Introduction to automobile safety ..... Mao Mingzhe, Wang Li (233)  
Research Status and Development Trend of New Type Shock Absorber ..... Lei Xianhua, Liu Xiang, Liu Xuting (236)  
Analysis of Chassis Evolution of Volkswagen MQB Platform ..... Zhao Kangbo, Jiang Yongsheng, Zhang Shijin (240)  
Research Status of Sawtooth and Corrugated Plate-fin Heat Exchangers ..... Lai Zhen, Guo Pengyan, Zhang Ruizhu, et al (242)

## Advertising Index

- Xi'an TGOOD LINCHR New Energy Technology Co., Ltd. .... inside front cover  
Automobile Applied technology magazine announced notice ..... inside back cover  
Shaanxi Automobile Group Commercial Vehicle Co., Ltd. .... back cover