Journal of Capital Normal University
(Natural Science Edition)

Total Contents of 2025 Vol.46 No.1-6

Analysis of solar shadow location based on 3D geometric transformation and multi-objective programming ····· QI Miaomiao, ZHANG Xia, LIU Ming (1) (1)
Multi factor pension problem under a Markov regime switching model ·····HUANG Menglei (1) (8)
Strengthen of Ostrowski type inequality for higher order differentiable functions ·····SHI Tongye (1) (20)
Fano resonance phenomenon in chromic telluride nanoparticles·····GUO Jin, WANG Hai, LIU Ying (1) (26)
Shot noise and its spectral decomposition in hybrid system of double quantum dots-topological superconductor ··· ·····CHEN Kaiwei, LIU Zhenxiang, GUO Hang, GUO Jianhong (1) (32)
Recent advances in the chemistry of Katritzky salts as nitrogen-centered radical precursors ····· ·····HU Shaojun, ZHU Guangli, CHEN Tiegen (1) (40)
^{90}Sr radioactivity in food in Guangxi from 2012 to 2022 ····· ···LU Xiufang, XIE Ping, WU Yingyu, Lei Jiajie, Ma Yilong, Feng Lanying, ZHAO Xinchun (1) (55)
Leaching of heavy metals vanadium and nickel from gasified petroleum coke ash ····· ····· WANG Jingyun, CHU Linlin, ZHANG Ran, JIN Xiaoxia (1) (61)
Evolution of spatial correlation network of tourism economy in the urban agglomerationsin in the Middle Reaches of Yangtze River under the background of the opening of high-speed railway ····· ·····MA Lijun, TANG Ying (1) (66)
Influence of cultural adaptation of fishing village residents on cultural inheritance in the context of tourism development ·····WANG Juan, ZHOU Xin (1) (77)
Identification of ideological and political education elements and teaching model in the course of world geography ·····LI Shuangshuang, HU Qingli, YAN Junping (1) (85)
Case study on the teaching system of transport field for international students major in urban and rural planning in China·····ZHU Gaoru, XU Xingmeng, ZHANG Chun, YAO Enjian (1) (92)
An extractive reading comprehension model based on pre-trained model with bi-directional attention flow ····· ·····WEN Yongjun, WU Jinming, MEI Shuo (2) (1)
The weathering effect of moisture on ancient rammed earth walls ····· ·····LIU Yugeng, ZHOU Rui, ZHAO Qiuyue, ZHAI Jingyuan, TIAN Yilu, YU Hongyang (2) (12)
Regularity of stochastic convolution with distributed delay ·····JIA Qian, WANG Wei (2) (18)
Impact of national special programs on regional economy based on composite PSM model ····· ·····LUO Xueping, LI Yajie (2) (24)
The common solutions of Pell equations $x^2-(a^2b^2\pm a)y^2=1$ and $y^2-2p_1p_2p_3z_2=4b^2$ ····· ·····YAN Dangdang, YANG Hai, MA Yingrui (2) (31)

Calculating the double integrals by using parametric equations of boundary curves ……
……GONG Xingtian, YANG Shuwei (2) (38)
Nonlinear static and dynamic characteristics of functionally graded graphene platelets reinforced beam in supersonic flow ……ZHANG Haochen, HAN Mingjun, FENG Ruilong (2) (43)
Causes and treatment status of black and odorous water pollution in rural areas of China ……
……YANG Jixin, CHENG Shanshan, LIU Linghua, WANG Xuedong (2) (52)
The value and related courses of the history of mathematics in normal education of China ……
……LI Na, LIU Bingnan, WANG Lidong (2) (61)
Theoretical perspectives, representative models, and implementation paths of conceptual change in science education: a case study of physics ……
……CHEN Menghan, YIN Di, YU Yang, ZHAO Sainan, WANG Jingying (2) (68)
Exploring the deep integration of inorganic chemistry experiments and ideological and political elements: based on crude salt purification experiments ……MA Hongyu, LI Zhao (2) (75)
Teaching design for the introduction of Surfactant Active Chemistry course……
……CHEN Weiyan, ZHANG Baohua, SONG Zuwei, GONG Liangyu, WANG Zuli (2) (81)
Exploration of the joint training model for master's degree students in Environmental Engineering ……
……KOU Wenbo, WANG Xuedong, ZHU Lin (2) (86)
Reform and explore of innovative teaching system of environmental chemistry experiment ……
……CHEN Weiwei, KANG Chunli, YANG Ping (2) (91)
Global existence and uniqueness of strong solution to the large-scale moist atmospheric dynamic equations ……
……LI Jinxu, LIAN Ruxu, MA Jieqiong (3) (1)
Calculation formula of a class of generalized Euler function $\varphi_e(n)$…JIANG Lianxia, ZHANG Sibao (3) (10)
Solvability of the number theoretic functional equation $\phi_8(n)=\frac{n}{d}$ ……NIU Jiaxing, GAO Li (3) (16)
Reliable high-efficiency supercontinuum generation with multiple thin plates ……
……LIU Zihao, ZENG Weiwang, LI Jiajie, SUN Wenfeng, REN Zefeng, ZHANG Yan (3) (24)
Superradiation of three dimensional Fermi gases with one dimensional spin orbit coupling supported by a cavity…
……XIANG Huyue, YANG Mingyue, SUN Qing (3) (30)
Waiting time distribution of Majorana fermions in topological superconductor coupled to double quantum dots …
……LIU Zhenxiang, CHEN Kaiwei, GUO Jianhong (3) (35)
Effects of drought stress on agronomic traits and bulb quality of *Lilium davidii* var. *unicolor* ……
……DANG Xin, SHA Xiaorong, JIN Lei (3) (41)
Effect of different potassium ion concentrations on the accumulation of secondary metabolites in *Lilium davidli* var. *unicolor* bulbs ……RAO Ning, JIN Lei, MA Hongyi, SU Hui (3) (53)
Comparison of the efficiency of different promoters driving foreign gene expression in microglia ……
……QIN Hongni, XIE Yuzhen, ZHANG Nannan, ZHANG Qingshuo, WU Fan (3) (59)
Influence of built environment on residents' perception of urban governance in Tianjin City under the background of urban physical examinationLI Yejin, XIONG Nan, WANG Yaqian, SONG Jialu (3) (66)
Promotion practice and implication of domestic and abroad zero-emission construction machinery……
QU Linzhen, CUI Yangyang, HUANG Guanghan, YI Huawei, LI Han, ZHU Lijun, XUE Yifeng (3) (75)

Channels and motivations for negative comments of rural tourist on catering in Beijing……
…… SU Yanjiao, WEN Jin （3）（81）
Regional planning teaching reform under the background of territorial spatial planning and emerging engineering education……CUI Nana, XU Gaofeng, ZHU Gaoru, JIAO Ziyi （3）（90）
Spatio-temporal distribution evolution of museums in Guangdong Province and influencing factors analysis ……
……CHEN Lixin, SHEN Shi, TAO Zhuolin, LI Guangzheng, YE Zhenlin （4）（1）
Evaluation and analysis of high quality development of each county in Ordos City based on entropy method and coupling coordination degree ……
……Li Yimin, Song Changqing, Wang Xiangyu, Ye Sijing, Gao Peichao （4）（11）
Simulation of land use evolution and spatial optimization in Tai'an City coupled with the GeoSOS model and ant colony algorithm ……YIN Yixing, GAO Peichao, ZHANG Shuyu, LI Huixian, DONG Yongqing, SONG Changqing （4）（22）
Some notes on the spectral sequence relative to $\tilde{\gamma}_{p-1}h_0g_n$ …YANG Zikang, GAO Ting, WANG Yuyu （4）（32）
Research and implementation of double Simpson's recursive algorithm ……
……LIU Haifeng, JIA Xukang, FAN Dingcheng, LIANG Xingliang （4）（37）
Hermitian Toeplitz determinants for the inverse of several univalent functions ……
……GUO Dong, AO En, WANG Qing, LI Zongtao （4）（45）
Genuine entanglement measures in multipartite quantum systems …ZHUANG Shuying, ZHAO Hui （4）（50）
Research on the cyclic stability of infrared emissivity electroinduction control devices based on CNT films ……
……HU Xinshu, WANG Han, CAO Zhilin, WANG Changhao, JIANG Qianlei, ZHAO Wei, WANG Ruzhi （4）（56）
Method optimization for the determination of 11 phenolic compounds in ambient air based on HPLC technique …
……LI Haini, CHEN Ziyan, CHEN Kaitao, LI Xingru （4）（64）
Exercise lesson teaching on the ordinary differential equation: an example of the elementary solution of the first order differential equation …… XIONG Min, LIU Weiming （4）（71）
Development and application of a physics modeling competence assessment tool for junior middle school students based on the new curriculum standard ……
……HU Xinyi, HE Jing, RONG Zhenshan, WANG Chenrui, YANG Yang, WANG Jingying （4）（76）
Path exploration and effects evaluation of ideological and political education in college Zoology courses ……
……ZHANG Hecai, ZHU He, TIAN Xin （4）（85）
Feasibility study on the opening of an experimental course on *Arabidopsis thaliana* callus induction for undergraduate students ……MEN Shuzhen, WANG Wenhui, SONG Jieqiong （4）（91）
Application of artificial intelligence technology to trace evidence identification ……
……HU Can, ZHU Jun, MEI Hongcheng, GUO Hongling, LI Yajun, DENG Xianhe, LI Zhi （5）（1）
Positive and negative inertia index of a hypertree ……WANG Jie, LI Deming （5）（8）
The zero tensor-divisors of $\mathbb{k}$-algebras……LIN Xia, LI Changyuan, LIU Yuzhe, ZHAO Wei （5）（13）
Construction of permutations with low c-differential and boomerang uniformities ……
……ZHU Simin, WANG Yan, LI Shunbo, FU Yanxi （5）（20）
Development of secure communications based on temporal ghost imaging ……
……CHEN Yitong, YANG Zhe, SUN Dongyun, CHENG Yatao, ZHANG Cunlin （5）（28）

Theoretical study of the efficiency of strained core/shell quantum dot solar cells GAO Yifei, SHI Lei (5) (39)
CASFISH-based method for detecting the expression of chromosomal fragile sites ……
……ZHANG Yunkun, YANG Yumeng, WU Tongtong, ZHONG Zhaohua, LIN Qingya, WU Di, CHEN Zhiling, WANG Hailong, WANG Dan (5) (47)
Geologic hazard risk assessment based on different rainfall intensity: a case study of Jinpu New District in Dalian City ……JIANG Junchao, HU Hanxiao, LYU Leting (5) (56)
Spatial layout and accessibility of primary education resources in Jiaozuo City ……
……MENG Wencan, ZHAO Wenji, WU Shuqi (5) (65)
Analysis of spatio-temporal heterogeneity of carbon emissions in the three provinces of northeast China and its influencing factors ……CAI Jiaxue, DAI Zhibin, ZHAO Liangshi, XU Shuting (5) (72)
Exploration of cultivating topology postgraduates from "consolidating professional foundation" to "leading interdisciplinary research" under the background of big data ……MA Liwen (5) (83)
Experimental improvement of traditional gravimetry: take the determination of barium content in soluble barium salt as an example ……FANG Yu, LIU Chang, YANG Yumeng, SUN Jianrui, LI Liping (5) (91)
Fast and simultaneous determination of ten prohibited and restricted tranquilizers in fish samples by HPLC-MS/MS
……LI Qin, WEN Yupeng, HUO Wendi, LIU Huan, MU Yingchun, LI Jincheng (6) (1)
Research progress of atmospheric pressure ionization mass spectrometry based on bibliometrics and its application in drug detection ……LI Jiawen, LEI Jiamei, LI Xinyi, LI Yingying, CAO Boyang, LI Jingxuan, SHAN Yabing, LI Dongmei, HE Hongyuan (6) (9)
Application of the new-type high-resolution tri-linear CCD system for authentication of document, calligraphy and painting ……SUN Jiani, WANG Xiao (6) (17)
An algorithm for minimum Tsallis entropy coupling……
……SUN Qingyang, HU Haiyang, LAN Zongyu, WANG Yingzhe (6) (26)
Construction of uninorms on bounded Trellis ……LIU Tianyu, GENG Jun (6) (34)
Tail risk contagion analysis of banks and non-bank financial institutions ……
……WANG Zhaoyuan, HUANG Wei (6) (41)
Blow-up of three-dimensional isentropic compressible magnetohydrodynamics equations……
……DING Xilai, LI Jinze (6) (49)
Cumulant properties of topological superconductor coupled single quantum dot structures ……
……GUO Hang, ZHAO Jiaang, GUO Jianhong (6) (54)
Design and application of EMA functional platform based on dual mode HU Xiaowei, HUANG Min (6) (62)
The classification of A-level tourist attractions and the influencing factors of their spatial distribution in Hubei Province ……WU Xian, WANG Xiaodong, DONG Xiaowei, BAI Guixin, ZHANG Mei (6) (69)
Implementation method of virtual online exhibition based on WebVR ……
……LUAN Haoyu, DONG Hengshuo, GUO Sujia, YANG Huanyu, YUN Yali (6) (79)
An important experiment to test quantum mechanics: Foster's Stark effect experiment ……
……WANG Rui, ZHU Huijuan (6) (88)