Advances in Applied Mathematics, Vol.12, No.4, 1375-2048
应用数学进展, 12 卷 4 期

TABLE OF CONTENTS
目　　录

绿色并购对重污染企业绿色创新的影响
The Impact of Green M&A on Green Innovation in Heavy Polluters
付琳……1375

具有无限马尔可夫切换的离散时间随机系统的最大值解、最小半正定解与稳定解的研究
The Maximal, Minimal Positive Semidefinite and Stabilizing Solutions for Discrete-Time Stochastic Systems with Infinite Markov Switching
赵红霞，何鑫，贾亚琪，张春梅，叶志勇……1382

基于 GM(1,1)的山西省医疗卫生资源的现状及趋势研究
Research on Current Situation and Trend of Medical and Health Resources in Shanxi Province Based on GM(1,1)
李俊……1391

基于 Hirose 模型的旅游类上市公司品牌价值分析
Analysis of Brand Value of Tourism Listed Companies Based on Hirose Model
石垚，叶欣梁……1400

福建省城镇居民消费性支出与可支配收入的多元回归分析
Multiple Regression Analysis on Consumption Expenditure and Disposable Income of Urban Residents in Fujian
陈馨羽，王煜婷，周鑫焱，何梦昕……1410

变系数分数阶偏微分方程的数值解法
Numerical Solution of Fractional Partial Differential Equations with Variable Coefficients
崔曼若……1418

基于 MLP 的 AKCN_MLWE 算法侧信道分析
MLP-Based AKCN_MLWE Algorithm Side Channel Analysis
尹源源，吴震……1429

一类变系数二阶椭圆交面问题有效的谱元法
An Efficient Spectral Element Method for A Class of Second Order Elliptic Interface Problems with Variable Coefficients
何娅，郑继会……1438

带乘性噪声的 Biswas-Arshed 方程的新行波解
New Traveling Wave Solution of Biswas-Arshed Equation with Multiplicative Noise
孟飞……1446

基于最大化联合互信息和最小化联合熵的特征选择
Feature Selection Based on Maximizing Joint Mutual Information and Minimizing Joint Entropy
刘亚文，温勇……1451

带有分数阶耗散的 MHD 方程在 Besov 空间的正则性准则
Regularity Criteria for MHD Equations with Fractional Laplacian Dissipation in Besov Spaces
林隆……1461

求解随机广义垂直线性互补问题的随机近似方法
Stochastic Approximation Approaches to Stochastic Extended Vertical Complementarity Problem
杨妍娇，王奕菲，张杰……1467

一类具有对数非线性项的分数阶阻尼波方程的局部适定性
Local Well-Posedness for a Class of Fractional Damped Wave Equations with Logarithmic Nonlinearity
林玲娜……1474

不含平衡圈的符号图的分解
Decomposition of Signed Graphs without Contain Balanced Cycle
朱晨波……1483

具有随机逆动态的马尔可夫切换随机低阶非线性系统的有限时间镇定
Finite-Time Stabilization of Markovian Switched Stochastic Low-Order Nonlinear Systems with Stochastic Inverse Dynamics
张雪，赵桂华……1487

全测地黎曼叶状结构中的 Hopf-Rinow 定理
Hopf-Rinow Theorem on Totally Geodesic Riemannian Foliations
隗世玲……1496

乘积图的博弈染色数
The Game Coloring Number of Product Graph
苏俊义……1504

云南省财政预算收支关系及预测研究
Research on the Relationship between Revenue and Expenditure of Fiscal Budget in Yunnan Province and Its Forecast
杨超……1510

直径为 d 的一些树的排序
Sorting of Some Trees with Diameter of d
谭荣，姜文芳……1526

Advances in Applied Mathematics, Vol.12, No.4, 1375-2048
应用数学进展, 12 卷 4 期
Published Online April 2023 in Hans (https://www.hanspub.org/journal/aam)

关于基因多效性检验中互斥假设检验的总结与探索
Summary and Exploration of Exclusive Hypothesis Test of Pleiotropy
范宇轩，李兰玉........1531

基于多重分形的中国外汇市场效率分析
Analysis of Chinese Exchange Market Efficiency Based on Multifractal
杨雷鑫，王海英，顾长贵........1549

一类带变号权 Kirchhoff 方程解的存在性
Existence of Solution for Kirchhoff Equation with Sign-Changing Weight
陈莉萍........1567

混合幂级数分布及其应用
Mixture Power Series Distribution and Its Application
赵雯雪，屈志扬，侯文........1574

基于 Vision Transformer 的有学习的侧信道攻击模型
Learning Side Channel Attack Model Based on Vision Transformer
廖杨杰，王燚........1581

基于变分模态分解和多头注意力的锂电池寿命预测
Prediction of the RUL for Lithium Batteries Based on Variational Mode Decomposition and Multi-Head Attention
龙思萌，何晓霞，魏茳越，肖浩逸，梁佳佳........1590

改进的多目标演化算法在护理路径问题的应用
Application of Improved Many-Objective Evolutionary Algorithm to Home Health Care Scheduling and Routing
付云鉴........1603

关于双树度差下界的一个例子
An Example of the Bound of Double Tree
张雅琴........1615

加权 Bergman 空间上具有调和符号的斜 Toeplitz 算子的正规性及亚正规性
The Normality and Hyponormality of Slant Toeplitz Operators with Harmonic Symbols on the Weighted Bergman Spaces
刘朝美，蒋志娟........1620

基于广义模糊软信息系统下的三支冲突分析
Three-Way Conflict Analysis with Generalized Fuzzy Soft Information System
李浩........1634

基于梯度下降法选取高斯径向基函数形状参数
Gaussian Radial Basis Function Shape Parameter Is Selected Based on Gradient Descent Method
谢志超，王玲，龚佃选，孙建，田炜印........1640

决策依赖模糊集下的分布鲁棒优化的重构
Reconstruction of Distributed Robust Optimization under Decision-Dependent Ambiguity Set
王奕菲，杨妍娇，张杰……1648

单平面有向无圈图中最小路覆盖问题的算法研究
Research of Minimum Path Covering Problem Algorithm in Single Planar Directed Acyclic Graph
管锐，梁东岳，杨卫华……1655

分数阶扩散方程的无网格数值模拟
Mesh-Less Numerical Simulation of the Fractional Diffusion Equation
卜田娜，庄薇，谢焕田……1664

基于集成算法的青岛市二手房房价分析与预测
Analysis and Prediction of Second-Hand House Price in Qingdao Based on Integrated Algorithm
潘珈，栾瑶瑶，洪晓晴，李敏……1671

带状域无浮力扩散的二维 Boussinesq 方程的稳定性
Stability of the 2D Boussinesq Equations without Buoyancy Diffusion in Strip Domain
成子强，任晓霞……1683

PBO 算法在量化交易中的应用
The Application of the PBO Algorithm in Quantitative Trading
陆羿辰，张烨辰，王天霞，陈蕾，胡江胜，孙丹丹……1690

波浪能发电装置输出功率的微分方程模型
The Differential Equation Model for the Output Power of Wave Energy Converter
马家耀，吴彬睿，吕平……1698

一类分数阶薛定谔－泊松系统非平凡解的存在性
Existence of Nontrivial Solution for a Class of Fractional Schrödinger-Poisson System
孟娟霞……1704

基于 Hamacher 三角模的对称毕达哥拉斯集成算子及其应用
Symmetric Pythagorean Fuzzy Aggregation Operator Based on the Hamacher T-Norm and Its Application
李卓明，张铭皓，张明雪，崔旭，马振明……1713

一类带扩散对流 SIS 模型的全局吸引子
Global Attractor of the SIS Epidemic Model with Diffusion and Convection
李得旺，梅林锋……1722

信号重构的优化算法及其在图片恢复中的应用
An Optimization Algorithm on Signal Reconstruction and Its Application in Image Restoration
王尊阳，郭超，孙洪春……1732

基于有序 Logistic 模型的老年数字鸿沟影响因素研究
A Study of the Factors Influencing the Digital Dividein Old Age Based on an Ordered Logistic Model
贾蕾，陈勇明……1744

磁场作用下 Vlasov-Euler-Fokker-Planck 解的全局存在性和正则性
Global Existence and Regularity of Vlasov-Euler-Fokker-Planck Solution with Magnetic Field
宋颖聪……1753

基于值函数内点罚方法的双层规划问题研究
Research on Bi-Level Programming Problem Based on Value-Function-Based Interior-Point Penalty Method
杜梦琪……1762

国产电影票房影响因素分析及票房预测
Analysis of Influential Factors and Box Office Prediction of Domestic Films
栾瑶瑶，洪晓晴，潘珈，李敏……1772

耦合 KdV 方程的相互作用解
Interaction Solutions of the Coupled KdV Equations
董露，陈怀堂……1785

时间分数阶扩散方程逆向问题的迭代分数次 Tikhonov 方法
Iterated Fractional Tikhonov Method for a Backward Problem for the Time-Fractional Diffusion Equation
杜文慧……1792

一类色散半群的基本估计
Basic Estimates for a Class of Dispersive Semigroups
黄慧文……1804

基于 PLS-结构方程模型的共同富裕影响因素研究
Study on Influencing Factors of Common Prosperity for Everyone Based on PLS-SEM
唐崇彪，丁咏梅，余佳雄……1810

具有 Beddington-DeAngelis 型功能反应的离散捕食者–食饵系统的动力学行为
Dynamical Behavior of Discrete Predator-Prey System with Beddington-Deangelis Functional Response
段明霞，马纪英……1824

基于图神经网络的企业信用评级方法
A Method for Corporate Credit Rating Based on Graph Neural Network
张晓薇，胡越……1838

基于机器学习的企业价值影响因素分析
Analysis on Influencing Factors of En-Terprise Value Based on Machine Learning
刘玉薇，陈勇明，彭毅……1848

一类不可压非牛顿 Boussinesq 方程组正则解的存在性
Existence of Regular Solution for a Class of Incompressible Non-Newton Boussinesq Equations
刘琳，王长佳……1855

交叉验证法在模型比较中的应用
Application of Cross-Validation in Model Comparison
张汇洋，刘瑞银……1866

基于 ARIMA 模型的深股指数预测分析
Shenzhen Stock Index Predictive Analysis Based on ARIMA Model
李贺……1874

Ljung-Box 检验及其改进方法的比较研究
Comparative Study of Ljung-Box Test and Its Improved Methods
孙淇铭……1884

双圈图的零强迫数与一般位置数
Zero Forcing Number and General Position Number in Bicyclic Graphs
荆瑜……1897

浅水波方程组的熵稳定有限体积格式
Entropy Stable Finite Volume Scheme for Shallow Water Equations
刘仁迪，赵晓旭，钱守国，李刚……1908

常维码的多重构造方法的新改进
New Improvements of Multilevel Construction for Constant Dimension Codes
李可，吴温萱，郭芝燕，杜雨轩……1927

基于双权重反馈策略恢复耦合系统的振荡动力学
Recovery of Oscillatory Dynamics of Coupled Systems Based on Double Weight Feedback Strategy
史东鑫，李兴瑞，单美华……1940

基于格子 Boltzmann 方法的顶盖驱动流数值模拟
Numerical Simulation of Overhead-Driven Flow Based on the Lattice Boltzmann Method
韩晨雨……1951

几类重图的阶为 4 的图对分解
Multidecompositions of Several Multigraphs for Graph-Pair of Order 4
赵依凡，杨卫华……1964

基于贝叶斯网络的梅雨季节降水诊断分析
Diagnostic Analysis of Precipitation in Plum Rain Season Based on Bayesian Network
黄梦婷，杨卫华……1971

四阶特征值问题基于降阶格式的一种有效的 Legendre-Galerkin 逼近
An Efficient Legendre-Galerkin Approximation Based on Reduced Order Scheme for Fourth Order Eigenvalue Problems
魏涛……1981

我国新能源汽车销量的长短期预测研究
Research on Long-Term and Short-Term Forecasting of New Energy Vehicle Sales in China
袁铮，谭琦……1989

Advances in Applied Mathematics, Vol.12, No.4, 1375-2048
应用数学进展, 12 卷 4 期

无源定位
Passive Location
张晓琪，高佳楠，徐子凯……2006

(3 + 1)维幂律 3 Zakharov-Kuznetsov 方程的行波解
Travelling Wave Solutions of a (3 + 1) Dimensional Zakharov-Kuznetsov Equation with Power Law 3
王双特，于恒国，刘环艺，戴文周……2020

具有恐惧效应与群体防御及捕食者种内竞争的捕食者–食饵动力学
Predator-Prey Dynamics with Fear Effects and Group Defense and Intraspecific Competition by the Predator
唐城林，农静才……2035

双偶数阶幻方构造规律的矩阵化
Matrix of Construction Law of Magic Squares of Double Even Order
朱雅妮，刘兴祥……2043