目　　录

Title：Global exponential stability of impulsive cellular neural networks with time-varying and distributed delay

Authors：Kelin Li, Xinhua Zhang, Zuoan Li (Department of Mathematics, Sichuan University of Science & Engineering)

Abstract：In this paper, a model of impulsive cellular neural networks with time-varying and distributed delays is investigated. By establishing an integro-differential inequality with impulsive initial conditions and employing the M-matrix theory, some sufficient conditions ensuring the existence, uniqueness and global exponential stability of equilibrium point for impulsive cellular neural networks with time-varying and distributed delays are obtained. An example is given to show the effectiveness of the results obtained here.

Keywords：Impulsive cellular neural networks, time-varying and distributed delay, Global exponential stability.

Title：A neural network method for solving a system of linear variational inequalities

Authors：Hengyou Lan (Department of Mathematics, Sichuan University of Science & Engineering), Yishun. Cui (Sichuan University of Science & Engineering)

Abstract：In this paper, we transmute the solution for a new system of linear variational inequalities to an equilibrium point of neural networks, and by using analytic technique, some sufficient conditions are presented. Further, the estimation of the exponential convergence rates of the neural networks is investigated. The new and useful results obtained in this paper generalize and improve the corresponding results of recent works.

Keywords：Linear variational inequality system, equilibrium point, neural network, analytic technique, exponential convergence rate.

Title：Global exponential stability of impulsive Cohen-Grossberg neural networks with delays

Author：Wenping Luo (Department of Mathematics, Sichuan University of Science & Engineering), Souming Zhong (University of Electronic Science and Technology of China), Jun Yang(Civil Aviation Flight University of China)

Abstract：In this paper, a class of Cohen-Grossberg neural networks involving delays and impulsive effects is considered. The analysis exploits a homeomorphism mapping and an appropriate Lyapunov functional, to derive easily verifiable sufficient conditions for convergence to the unique globally exponentially stable equilibrium state. The proposed conditions generalize some previous results in the literature. At last, two numerical examples are worked out to illustrate the effectiveness of our results.

Keywords：Cohen-Grossberg neural networks, Exponential stability, Impulsive, Delay.

Title：On the existence of solutions for nonlinear first-order implicit impulsive integro-differential equations

Authors：Hengyou Lan (Department of Mathematics, Sichuan University of Science & Engineering),Yishun Cui (Sichuan University of Science & Engineering)

Abstract：By using the Mǒnch fixed point theorem, the purpose of this paper is to obtain the new existence theorems of solutions for a new class of initial value problems of nonlinear first-order implicit impulsive integro-differential equations in Banach spaces under some weaker conditions.

Keywords：Nonlinear first-order implicit impulsive integro-differential equation, initial value problem, fixed point, measure of noncompactness, existence.

Title：Variational convergence of a new proximal algorithm for nonlinear general A-monotone operator equation systems in Banach spaces

Authors：Hengyou Lan (Department of Mathematics, Sichuan University of Science & Engineering) and Lecai. Cai (Sichuan University of Science & Engineering)

Abstract：The purpose of this paper is to introduce the notion of general A-monotone operators in Banach spaces and the new proximal mapping associated with the general A-monotone operators. By using Alber's inequalities and the new proximal mapping technique, the variational convergence of a new proximal algorithm for nonlinear general A-monotone operator equation systems with relaxed cocoercive operators in Banach spaces is introduced and studied. Our results improve and generalize the corresponding results of recent works.

Keywords： General A-monotone operator, new proximal algorithm, nonlinear operator equation system with relaxed cocoercive operator, proximal mapping technique, existence and variational convergence.

Title：Approximation solvability of nonlinear random (A, η)-resolvent operator equations with random relaxed cocoercive operators

Author：Hengyou Lan (Department of Mathematics, Sichuan University of Science & Engineering)

Abstract：In this paper, we introduce and study a new class of nonlinear random (A, η)-resolvent operator equations with random relaxed cocoercive operators in Hilbert spaces. By using the Chang's lemma, Theorem 3.1 of Liu and Li, and the resolvent operator technique for (A, η)-monotone operators due to Lan, we also prove the existence theorems of the solutions and convergence theorems of the new generalized random iterative procedures with errors for this nonlinear random (A, η)-resolvent operator equations involving non-monotone random set-valued operators in Hilbert spaces. The results presented in this paper improve and generalize some known corresponding results in the literature.

Keywords：Non-monotone random set-valued operator, nonlinear random (A, η)-resolvent operator equation with random relaxed cocoercive operator, random resolvent operator technique, new generalized random algorithm, existence and convergence.

Title：On initial value problems for first-order implicit impulsive fuzzy differential equations

Authors：Hengyou Lan (Department of Mathematics, Sichuan University of Science & Engineering), Juan José. Nieto (Spain)

Abstract：In this paper, by using Banach contraction mapping principle theorem, we obtain some new existence and uniqueness theorems of solutions for a new class of initial value problems of first-order implicit impulsive fuzzy differential equations in the metric space of normal fuzzy convex sets with distance given by maximum of the Hausdorff distance between level sets.

Keywords：First-order implicit impulsive fuzzy differential equation, initial value problem, normal fuzzy convex sets, fixed point, existence and uniqueness.

Title：Global exponential stability of impulsive fuzzy cellular neural networks with delays and diffusion

Author：Kelin Li (Department of Mathematics, Sichuan University of Science & Engineering)

Abstract：In this paper, a class of impulsive fuzzy cellular neural networks (FCNNs) with mixed delays and diffusion is formulated and investigated. By establishing an intergro-differential inequality, applying M-matrix theory and inequality technique, several sufficient conditions are obtained to ensure the existence, uniqueness and global exponential stability of an equilibrium point for impulsive FCNNs with mixed delays and diffusion. In particular, the estimate of the exponential convergence rate is also provided, which depends on the system parameters and impulses. These results generalize and improve the earlier publications. Some examples are given to show the effectiveness of the obtained results. It is believed that these results are significant and useful for the design and applications of FCNNs.

Keywords：Fuzzy cellular neural networks, impulses, time-varying delays, distributed delays, global exponential stability, reaction–diffusion

Title：The asymptotic behavior of quadratic forms in phi-mixing random variables

Author：Fumin Lin (Department of Mathematics, Sichuan University of Science & Engineering)

Abstract：Let $\{Z_i, i \geq 1\}$ be a linear process defined by $Z_t = \sum_{j=0}^{\infty} d_j \xi_{t-j}$ with $\{d_j, j \geq 0\}$ being a regular varying sequence of real numbers and $\{\xi_t, -\infty < t < \infty\}$ being a sequence of phi-mixing random variables. The present paper studies the asymptotic behavior of the quadratic form $\sum_{k,l=1}^{n} \hat{\mu}(k-l) Z_k Z_l$ under some mild assumptions on d_j and ξ_t. Meanwhile, the similar results of _-mixing random variables are presented

Keywords：Quadratic forms, linear process phi-mixing variables, α-mixing variables

Title：Steady state analysis and computation of the $GI^{[x]}/M^b/1/L$ queue with multiple working vacations and partial batch rejection

Author：Miaomiao Yu (Department of Mathematics, Sichuan University of Science & Engineering), Yinghui Tang (Sichuan Normal University),Yonghong Fu (Sichuan University of Science & Engineering)

Abstract：This paper analyzes a finite-buffer bulk-arrival bulk-service queueing system with multiple working vacations and partial batch rejection in which the inter-arrival and service times are, respectively, arbitrarily and exponentially distributed. Using the supplementary variable and the embedded Markov chain techniques, we obtain the waiting queue-length distributions at pre-arrival and arbitrary epochs. We also present Laplace–Stiltjes transform of the actual waiting-time distribution in the queue. Finally, several performance measures and a variety of numerical results in the form of tables and graphs are discussed.

Keywords：$GI^{[x]}/M^b/1/L$ queue, Steady-state probability, supplementary variable technique, embedded markov chain.

Title：Stability analysis for impulsive Cohen-Grossberg neural networks with time-varying delays and distributed delays

Author：Kelin Li (Department of Mathematics, Sichuan University of Science & Engineering)

Abstract：In this paper, a class of impulsive Cohen_Grossberg neural networks with time-varying delays and distributed delays is investigated. By establishing an integro-differential inequality with impulsive initial conditions, employing the M-matrix theory and the nonlinear measure approach, some new sufficient conditions ensuring the existence, uniqueness, global exponential stability and global robust exponential stability of equilibrium point for impulsive Cohen-Grossberg neural networks with time-varying delays and distributed delays are obtained. In particular, a more precise estimate of exponential convergence rate is provided. By comparisons and examples, it is shown that the results obtained here can extremely extend and improve previously known results.

Keywords：Impulses, delay, integro-differential inequality, Cohen-Grossberg neural networks, stability.

Title：General *A*-monotone operators and perturbed iterations for nonlinear set-valued relaxed cocoercive operator inclusion problems

Authors：Hengyou Lan (Department of Mathematics, Sichuan University of Science & Engineering), Lecai. Cai (Sichuan University of Science & Engineering), Zishan. Liu (Sichuan University of Science & Engineering)

Abstract：In this paper, we introduce the notion of general A-monotone operators in Banach spaces, study some properties of general A-monotone operator and the new proximal mapping associated with the general A-monotone operators. By using Alber's inequalities, Nalder's results and the new proximal mapping technique, we also construct two new class of perturbed iterative algorithms with mixed errors for solving a new class of nonlinear set-valued relaxed cocoercive operator inclusions and study applications of general A-monotone operators to the approximation-solvability of the nonlinear set-valued relaxed cocoercive operator inclusion problems in Banach spaces. Furthermore, the general A-monotone operators are illustrated by some examples. The results presented in this paper improve and generalize the corresponding results on strongly monotone quasi-variational inclusions and nonlinear implicit quasi-variational inclusions.

Keywords：General A-monotone operator, perturbed iterative algorithm with mixed errors, nonlinear set-valued relaxed cocoercive operator inclusion, uniformly smooth Banach space, approximation-solvability.

Title：General nonlinear random equations with random multi-valued operator in Banach spaces

Authors：Hengyou Lan (Department of Mathematics, Sichuan University of Science & Engineering), Yeol Je. Cho (Korea) and Wei. Xie (Sichuan University of Science & Engineering)

Abstract：In this paper, we introduce and study a new class of general nonlinear random multi-valued operator equations involving generalized m-accretive mappings in Banach spaces. By using the Chang's lemma and the resolvent operator technique for generalized m-accretive mapping due to Huang and Fang [Generalized m-accretive mappings in Banach spaces, J. Sichuan Univ. 38(4) (2001), 591-592], we also prove the existence theorems of the solution and convergence theorems of the generalized random iterative procedures with errors for this nonlinear random multi-valued operator equations in q-uniformly smooth Banach spaces. The results presented in this paper improve and generalize some known corresponding results in the literature.

Keywords：Generalized m-accretive mapping, nonlinear random multi-valued operator equation, q-uniformly smooth Banach space, random algorithm, existence and convergence.

Title：Composition operator on Bergman-Orlicz space

Author：Zhijie Jiang (Department of Mathematics, Sichuan University of Science & Engineering)

Abstract：Let D be the open unit disk in the complex plane and let $dA(z)$ denote the normalized area measure on D 。For $\alpha > -1$ and ϕ a twice differentiable, nonconstant, nondecreasing, nonnegative, and convex function on $[0, \infty)$, the Bergman-Orlicz space is defined as follows

$$L_\alpha^\phi = \{ f \in H(D) : \int_D \phi(\log^+ | f(z) |)dA_\alpha(z)\} < \infty.$$

Let φ be an analytic self-map of D. The composition operator induced by φ is defined by $C_\varphi f = f \circ \varphi$ for f analytic in D. We prove that the composition operator C_φ is compact on L_α^ϕ if and only if C_φ is compact on A_α^2, and C_φ has closed range on L_α^ϕ if and only if C_φ has closed range on A_α^2.

Keywords：Bergman-Orlicz space, composition operator, closed range, compact operator.

Title：Two-step relaxation newton method for nonsymmetric algebraic riccati equations arising from transport theory

Author：Shulin Wu (Department of Mathematics, Sichuan University of Science & Engineering), Chengming Huang (Huazhong University of Science and Technology)

Abstract：In this paper, we propose a new idea to construct an effective algorithm to compute the minimal positive solution of the nonsymmetric algebraic Riccati equations arising from transport theory. For a class of these equations, an important feature is that the minimal positive solution can be obtained by computing the minimal positive solution of a couple of fixed--point equations with vector form. Based on the fixed--point vector equations, we introduce a new algorithm, namely \emph{two--step relaxation Newton}, derived by combining two different relaxation Newton methods to compute the minimal positive solution. The monotone convergence of the solution sequence generated by this new algorithm is established. Numerical results are given to show the advantages of the new algorithm for the nonsymmetric algebraic Riccati equations in vector form.

Keywords：nonsymmetric algebraic Riccati equations, relaxation Newton method, fixed-point equations, minimal positive solution, monotone convergence.

Title：Global exponential stability of impulsive BAM neural networks with distributed delays

Author：Jie Zhou (Department of Mathematics, Sichuan University of Science & Engineering), Shuyong Li (Sichuan Normal University)

Abstract：In this paper, the existence and uniqueness, and the global exponential stability (GES) of equilibrium point of a impulsive BAM neural networks with distributed delays are considered. Here we point out, different from previous methods, we do not construct Lyapunov functional or use the properties of nonsingular M-matrix. We use some basic analytical technique, such as contraction mapping principle and differential inequality technique to obtain our results. It is shown that, in some case, the stability criteria can be easily checked. Several remarks are worked out to demonstrate the advantage of our results.

Keywords：Global exponential stability, BAM, distributed delays impulsive.

Title：Almost sure limit theorem for the maxima of strongly dependent gaussian sequences

Author：Fumin Lin (Department of Mathematics, Sichuan University of Science & Engineering)

Abstract：In this paper, we prove an almost sure limit theorem for the maxima of strongly dependent Gaussian sequences under some mild conditions. The result is an expansion of the weakly dependent result of E. Cs´aki and K. Gonchigdanzan.

Keywords：Almost sure central limit theorem, strongly dependent sequence, logarithmic average.

Title：Perturbed iterative approximation of solutions for nonlinear general A-monotone operator equations in Banach spaces

Authors：Xing. Wei (Sichuan Normal University), Hengyou Lan and Xianjun. Zhang (Department of Mathematics, Sichuan University of Science & Engineering)

Abstract：In this paper, we introduce and study a new class of nonlinear general A-monotone operator equation with multi-valued operator. By using Alber's inequalities, Nalder's results and the new proximal mapping technique, we construct some new perturbed iterative algorithms with mixed errors for solving the nonlinear general A-monotone operator equations and study the approximation-solvability of the nonlinear operator equations in Banach spaces. The results presented in this paper improve and generalize the corresponding results on strongly monotone quasi-variational inclusions and nonlinear implicit quasi-variational inclusions.

Keywords：General A-monotone operator, perturbed iterative algorithm with mixed errors, nonlinear multi-valued relaxed cocoercive operator inclusion, uniformly smooth Banach space, approximation-solvability.

Title：Stability analysis of impulsive fuzzy cellular neural networks with distributed delays and reaction-diffusion terms

Authors：Zuoan Li, Kelin Li (Department of Mathematics, Sichuan University of Science & Engineering)

Abstract：In this paper, we investigate a class of impulsive fuzzy cellular neural networks with distributed delays and reaction-diffusion terms. By employing the delay differential inequality with impulsive initial conditions and M-matrix theory, we find some sufficient conditions ensuring the existence, uniqueness and global exponential stability of equilibrium point for impulsive fuzzy cellular neural networks with distributed delays and reaction-diffusion terms. In particular, the estimate of the exponential converging index is also provided, which depends on the system parameters. An example is given to show the effectiveness of the results obtained here.

Keywords：Impulsive fuzzy cellular neural networks, distributed delays, reaction-diffusion terms, stability analysis.

Title：Stability analysis of impulsive Cohen–Grossberg neural networks with distributed delays and reaction–diffusion terms

Authors：Zuoan Li, Kelin Li (Department of Mathematics, Sichuan University of Science & Engineering)

Abstract：In this paper, we investigate a class of impulsive Cohen–Grossberg neural networks with distributed delays and reaction–diffusion terms. By establishing an integro-differential inequality with impulsive initial conditions and applying M-matrix theory, we find some sufficient conditions ensuring the existence, uniqueness, global exponential stability and global robust exponential stability of equilibrium point for impulsive Cohen–Grossberg neural networks with distributed delays and reaction–diffusion terms. An example is given to illustrate the results obtained here.

Keywords：Cohen–Grossberg neural networks, Impulses, Delays, Global exponential stability, Reaction–diffusion.

Title：Finite groups whose monolithic characters vanish on at most two conjugacy classes

Author：Jinshan Zhang (Department of Mathematics, Sichuan University of Science & Engineering),Wujie Shi(Suzhou University), Dandan Liu (Sichuan University of Science & Engineering)

Abstract：The aim of this note is to classify the finite groups whose monolithic characters vanish on at most two conjugacy classes in the character table. Our result generalizes a theorem of M. Bianchi, D. Chillag and A. Gillio.

Keywords：Finite groups, character, zeros.

Title ：Stability of Cohen-Grossberg-type fuzzy cellular neural networks with distributed delays and impulses

Authors：Kelin Li (Department of Mathematics, Sichuan University of Science & Engineering), Jinming Liang (Sichuan University of Science & Engineering)

Abstract：In this paper, a generalized model of Cohen-Grossberg-type fuzzy cellular neural networks (FCNNs) with distributed delays and impulses is formulated and investigated. By employing the delay differential inequality with impulses initial conditions and the M-matrix theory, some sufficient conditions ensuring the existence, uniqueness and global exponential stability of equilibrium point for Cohen-Grossberg-type FCNNs with distributed delays and impulses are obtained. In particular, more precise estimate of exponential convergence rate is provided. An example are given to show the effectiveness of the obtained results.

Keywords： Cohen-Grossberg-type fuzzy cellular neural networks, distributed delays and impulses, existence, uniqueness and global exponential stability.

Title：First-order mixed type implicit impulsive fuzzy differential equation systems

Authors：Hengyou Lan, Wei. Xie, Xianjun Zhang (Department of Mathematics, Sichuan University of Science & Engineering)

Abstract：In this paper, by using Banach contraction mapping principle, we obtain some new existence and uniqueness theorems of solutions for a new system of initial value problems of first-order mixed type implicit impulsive fuzzy differential equations in the metric space of normal fuzzy convex sets with distance given by maximum of the Hausdorff distance between level sets.

Title ：Two-step relaxation newton algorithm for solving nonlinear algebraic equations

Author：Shulin Wu (Department of Mathematics, Sichuan University of Science & Engineering), Peng Hu, Chengming Huang (Huazhong University of Science and Technology)

Abstract：We introduce a new algorithm, namely two-step relaxation Newton, for solving algebraic nonlinear equations f(x)=0. This new algorithm is derived by combining two different relaxation Newton algorithms introduced by Wu et al. [Newton waveform relaxation method for solving algebraic nonlinear equations, Applied Mathematics and Computation, 201 (2008), pp. 553-560], and therefore with special choice of the so called splitting function it can be implemented simultaneously, stably with much less memory storage and CPU time compared with the Newton-Raphson method. Global conv-ergence of this algorithm is established and numerical experiments show that this new algorithm is feasible and effective, and outperforms the original relaxation Newton algorithm and the Newton--Raphson method in the sense of iteration number and CPU time.

Title：Passivity analysis of uncertain neutral fuzzy systems

Author：Wenping Luo (Department of Mathematics, Sichuan University of Science & Engineering), Jun Yang (Civil Aviation Flight University of China)

Sources：2009 International Conference on Intelligent Human-Machine Systems and Cybernetics, 2009, 1(1):170-173

EI Compendex

Abstract：In this paper, the passivity analysis of neutral fuzzy systems with delays and bounded uncertainties is considered. Based on Lyapunov- Krasovskii functional, the LMI approach and the descriptor system approach, sufficient conditions for passivity are obtained. Finally, a simulation example is provided to demonstrate effectiveness and applicability of the theoretical results.

Keywords：Passivity, Takagi-Sugeno (T-S) fuzzy systems, Neutral systems, Lyapunov-Krasovskii functional, Linear matrix inequalities(LMIs).

Title：Exponential stability of fuzzy cellular neural networks with time-varying delays and impulses

Authors：Jinming Liang, Kelin Li (Department of Mathematics, Sichuan University of Science & Engineering)

Sources：Proceedings of the 2009 WRI World Congress on Computer Science and Information Engineering, CSIE 2009, vol5, pp 637-644

EI Accession number：20094712464566

Abstract：In this paper, a generalized model of fuzzy cellular neural networks (FCNNs) with time-varying delays and impulsesis formulated and investigated. By employing the delay differential inequality with impulses initial conditions and the M-matrix theory, some new sufficient conditions ensuring the existence, uniqueness and global exponential stability of equilibrium point for FCNNs with time-varying delays and impulses are obtained. In particular, a more precise estimate of exponential convergence rate is provided. An example is given to show the effectiveness of the obtained results.

Keywords：Fuzzy cellular neural networks, time-varying delays, impulses, exponential stability.

Title：Sability analysis of BAM fuzzy neural networks with distributed delays and reaction-diffusion terms

Authors：Kelin Li (Department of Mathematics, Sichuan University of Science & Engineering), Qiankun Song (Chongqing Jiaotong University)

Sources：Dynamics of Continuous, Discrete and Impulsive Systems：Series A:

Mathematical Analysis 2009, 16 (3): 375-396

Abstract：In this paper, global exponential stability of bi-directional associative memory (BAM) fuzzy neural networks with distributed delays and reaction-diffusion terms isinvestigated. Two suffcient conditions, which ensure the existence, uniqueness and global exponential stability of equilibrium point for this neural network, are obtained by using the topological degree theory, properties of *M*-matrix, Lyapunov functional and analysis technique. Exponential convergence rate which depends on the delay kernel functions and system parameters is estimated. Two examples are given to show the e®ectiveness of the obtained results. It is believed that these results are significant and useful for the design and applications of BAM fuzzy neural networks.

Keywords：Bi-directional associative memory, fuzzy neural networks, reaction-diffusion, distributed delays, global exponential stability.

Title：Weakly c*-normal subgroups and p-Nilpotency of Finite Groups

Author：Shitian Liu (Department of Mathematics , Sichuan University of Science & Engineering)

Abstract：H is c*-normal in G if there is a normal subgroup K≤G such that G = HK1 and H ∩K is S-quasinormally embedded in G. The following results is established: Let G be a group such that G is S4-free. Also let p be the smallest prime dividing the order of G and P a Sylow p-subgroup of G. If every minimal subgroup of P of order p or 4 (when p=2) is weakly c*-normal in NG(P) and P is quaternion-free, then G is p-nilpotent. The result is a generation of some authors'

Keywords：Sylow subgroups, weakly c*-normal subgroups, p-nilpotent, minimal subgroups.

Title：Finite groups with some subgroups weakly c^*-normal subgroups and p-nilpotency

Authors：Shitian Liu, Deqin Chen (Department of Mathematics, Sichuan University of Science & Engineering)

Abstract：A subgroup H is called to be weakly c*-normal in a group G if there exists a subnormal subgroup K \leq G such that HK=G and H \cap K is s-quasinormally embedded in G. Some results on p-nilpotency of finite

groups G with some subgroups of sylow subgroups weakly c*-normal in G are given.

Keywords：Weakly c*-normality, soluble, p-nilpotence, s-quasinormally embedded.

Title：The c−supplemented subgroups and p-nilpotency of finite groups

Author：Shitian Liu (Department of Mathematics, Sichuan University of Science & Engineering)

Abstract：The key of this paper is to determine the p-nilpotence of finite groups under assumption that some subgroups of Sylow subgroups of G are c-supplemented.

Keywords：Sylow subgroups, c-supplemented subgroups, p-nilpotent.

Title：The c*-normal subgroups of finite groups

Author：Shitian Liu (Department of Mathematics, Sichuan University of Science & Engineering)

Abstract：H is c*-normal in G if there is a normal subgroup K≤ G such that G = HK1 and H ∩K is S-quasinormally embedded in G. In this paper, we will give some characterization of supersolvability of finite groups and improve some authors's results.

Keywords：c*−normal, solvable, supersolvability.

Title：Stability in impulsive bi-directional associative memory neural networks with time-varying delays

Author：Liping Zhang (Department of Mathematics, Sichuan University of Science & Engineering)

Abstract：In this paper, a class of impulsive bi-directional associative memory (BAM) neural networks with time-varying delays is investigated. By employing the delay differential inequality with impulsive initial conditions and

M-matrix theory, some new sufficient conditions ensuring the existence, uniqueness and global exponential stability of equilibrium point for impulsive BAM neural networks with time-varying delays are derived. In particular, the estimate of the exponential converging rate is also provided, which depends on the system parameters. An example is given to show the effectiveness of the results obtained here.

Keywords：Bi-directional associative memory, neural networks, delays, impulses, global exponential stability.

Title：On global exponential exponential stability of generalized Cohen-Grossberg neural networks with time-varying delays

Author：Liping Zhang, Zuoan Li (Department of Mathematics, Sichuan University of Science & Engineering)

Sources：Journal of Mathematical Sciences: Advances and Applications 2009, 2 (1): 65-84

Abstract：In this paper, a generalized model of Cohen-Grossberg neural networks with time-varying delays is investigated. By employing the nonlinear measure approach, analytic methods, inequality technique and M-matrix theory, some sufficient conditions ensuring the existence, uniqueness and global exponential stability of equilibrium point for Cohen-Grossberg neural networks with time-varying delays are obtained. Two examples are given to show the effectiveness of the obtained results.

Keywords：Cohen-Grossberg neural network s, global exponential stability, time-varying delays, nonlinear measure.

Title：On p-nilpotence of finite groups

Author：Shitian Liu(Department of Mathematics , Sichuan University of Science & Engineering)

Sources：J.Math.Res 2009,1(1): 87-91

Abstract：A subgroup H is said to be weakly c*-normal in a group G if there exists a subnormal subgroup K of G such that HK = G and H ∩ K is s-quasinormally embedded in G. We give some results which generalize some authors' results.

Keywords：Weakly c*-normality, p-nilpotence, s-quasinormally embedded.

Title：Solutions for a system of initial value problems of nonlinear first order implicit impulsive differential equations in Banach spaces

Authors：Nanjing. Huang (Sichuan University), Hengyou Lan (Department of Mathematics, Sichuan University of Science & Engineering), Xianghua. Gan (The Hong Kong Polytechnic University)

Abstract：In this paper, by using the Mǒnch fixed point theorem, we obtain a new existence theorem of solutions for a system of initial value problems of nonlinear first-order implicit impulsive differential equations in Banach spaces under some suitable conditions.

Keywords：Implicit impulsive differential equation, nonlinear differential equation, initial value problem, fixed point, measure of noncompactness, existence.

Title： A class of random strongly nonlinear multi-valued variational inequalities

Authors：Jong Kyu. Kim (Korea), Hengyou Lan (Department of Mathematics , Sichuan University of Science & Engineering), Young Man. Nam (Korea)

Abstract：In this paper, we introduce a new class of random strongly nonlinear variational inequalities with multi-valued mappings in Hilbert spaces and prove some existence theorems of random solutions for this class of random strongly nonlinear variational inequalities with multi-valued mappings. We also construct some new random iterative algorithms and give the convergence of random Ishikawa and Mann iterative sequences generated by the algorithms. Several special case, which can be obtained from our results, are also discussed.

Keywords：Random strongly nonlinear multi-valued variational inequality, new method, random iterative algorithm, convergence.

Title： Optimal design of artificial blending phosphorus ore

Authors：Yishun. Cui (Sichuan University of Science & Engineering), Hengyou Lan (Department of Mathematics, Sichuan University of Science & Engineering)

Abstract：Through an orthogonal experiment, the effect of adding MgO, Al_2O_3, $Fe_2(SO_4)_3$, SiO_2 and CaO to Jinhe phosphorus ore decomposition is

studied. A class of response curved surface mathematical models, which concern the rate of phosphorus ore decomposition and the receiving rate of phosphoric anhydride with each orthogonal factor are also established by using the software Statistics Package for Social Science (in short, SPSS). Furthermore, the optimal components of the phosphorus ore are calculated by the mathematical software Matlab. The results presented in this paper can provide a theoretical foundation for artificial blending rock and the exploitation of phosphorus ore with middle or low grade in producing wet-process phosphoric acid.

Keywords：Orthogonal experiment design, response curved surface mathematical model, mathematical softs SPSS and Matlab, optimal components of artificial blending phosphorus ore, wet-process phosphoric acid.

Title：some generalized frattinni subgroup

Authors：Ying Wang (Department of Mathematics, Sichuan University of Science & Engineering), Zhirang Zhang(Chengdu University of Information Technology)

Abstract：In this article, two generalized forms $_{fn}Frat(G)$ and $_{fc}Frat(G)$ of the Frattini subgroup Frat(G) of any group G are introduced.

The properties of $_{fn}Frat(G)$ and $_{fc}Frat(G)$ are studied and results analogous to those of the Frattini subgroup are established.

Keywords：$_{f}Frattini$ subgroup, $_{fn}Frattini$ subgroup, $_{fc}Frattini$ subgroup, fn-nongenerators, fc-nongenerators.

Title：The distribution of zeros in the character tables and the structure of finite groups

Authors：Guangju Zeng, Jinshan Zhang, Dandan Liu (Department of Mathematics, Sichuan University of Science & Engineering)

Abstract：Let G be a non-nilpotent solvable group. The aim of this note is to investigate the finite group G with a small number of zeros outside $F(G)$ in the character table, where $F(G)$ is the Fitting subgroup of G.

题目：离散时间有限缓冲空间 GI/M/1/N 工作休假排队系统稳态概率算法及性能分析

姓名：余纱妙 (四川理工学院数学与统计学院), 唐应辉(四川师范大学)

发表刊物：系统工程理论与实践, 2009,29(9): 99-107

收录情况：EI Accession number：20094512437636

摘要：综合使用离散补充变量方法和嵌入Markov链技术研究了离散时间有限缓冲空间工作休假GI/Geom/1/N排队系统。首先运用离散补充变量方法给出一个重要等式, 从而获得系统在稳态情形下任意时刻队长分布和顾客到达前夕队长分布的迭代关系。然后,再利用嵌入Markov链技术通过求解不变概率测度方程获得顾客到达前夕队长分布的数值解。而后将顾客到达前夕队长分布代入迭代公式求得稳态情形下任意时刻的队长分布。最后给出几个特殊情形下的数值计算实例,并讨论了系统参数对几个主要性能指标的影响。

关键词：离散时间排队系统, 有限缓冲空间, 工作休假, 离散补充变量方法, 嵌入Markov链方法。

题目：工业 CT 三维体数据边缘面提取

姓名：刘长江 (四川理工学院数学与统计学院)

发表刊物：计算机工程与应用 2009,45(18):219-221

摘要：采用了新近发展起来的边缘提取技术——细胞神经网络(CNN), 从工业CT(Computed Tomography, 计算机断层成像)体数据出发, 提取被扫描工件的内外表面(称为边缘面)。当一个边缘面与某方向切片序列中的某切片重合时, 采用二维边缘提取方法不易从该切片序列中提取出边缘面。针对这种情形, 将工业CT体数据沿三个互相垂直的方向剖分, 得到相应的切片序列。然后对每个切片, 采用两组二维细胞神经网络实现边缘提取。再将同方向的切片边缘数据重组, 得到对应方向的边缘体数据。最后, 综合各方向的边缘体数据得到边缘面。该算法由于考虑了体数据在三个方向的

灰度变化, 分割结果比仅考虑单一方向的算法更接近真实情形。对边缘分割后的体数据的三维显示表明, 该算法能得到比较真实的边缘面。

关键词：图像处理, 细胞神经网络, 工业计算机断层成像, 体数据, 边缘提取。

题目(Title)：基于粗集理论的语音情感识别研究

姓名：唐建芳 (四川理工学院数学与统计学院)

发表刊物：计算机科学 2009, 36(8A): 24-26

摘要：本文是就语音中的情感识别问题进行了相关讨论, 针对该问题中悲伤和害怕不易区分的方面, 利用欧氏空间建立了一种情感空间, 通过定义的欧氏距离聚类方法进行语音信号识别的属性值的离散归一化处理, 构成一个语音信号识别知识数据表, 利用粗集理论中信息一致性和最大信息覆盖率准则提取了语音情感信号识别有用的特征参数, 大大简化了语音情感识别系统。实验结果表明, 我们提出的的语音情感识别模型不仅简化了系统而且提高了语音情感识别率。

关键词：语音情感识别，粗糙集，特征属性，属性化简。

题目：多目标运输问题的区间规划模型及其算法

姓名：张先君 (四川理工学院数学与统计学院), 钟波(重庆大学)

发表刊物：数学的实践与认识 2009, 39(4)：1-5

摘要：本文主要给出一类目标函数的系数、供应量和需求量均为区间数的多目标运输问题模型, 根据参数的实际意义和区间数的序关系, 针对所建立模型,利用区间规划的方法, 将其转化为确定型的多目标运输问题, 最后用模糊规划技术处理等价的多目标运输问题。数值例子表明算法的有效性。.

关键词：多目标规划, 运输问题, 区间数, 模糊规划。

题目：Bergman 空间上的复合算子与加权复合算子

姓名：李作安, 江治杰 (四川理工学院数学与统计学院)

发表刊物：四川大学学报 2009, 22(5)：1245-1250

摘要：作者研究了多复平面c^n中有界对称域上解析函数Bergman空间上的复合算子与加权复合算子。利用有界对称域的Bergman度量分解, 作者给出了复合算子具有闭值域的一个充分条件。特别地, 当有界对称域为单位球时, 作者利用Bergman空间上范数与Sobolev空间上范数的等价性得到了复合

算子具有闭值域的一个充分条件。最后，作者刻画了自伴加权复合算子以及Fredholm复合算子的特征。

关键词：Bergman空间 加权复合算子 复合算子 闭值域 Fredholm算子。

题目：α—Bloch 空间到 BMOA 空间的复合算子

姓名：柏宏斌，江治杰 (四川理工学院数学与统计学院)

发表刊物：四川大学学报 2009, 46(4)：864-868

摘要：定义了单位球上的解析函数α-Bloch空间以及BMOA空间，然后刻画了α-Bloch空间上Fredhoml复合算子的特征，最后利用函数的径向导数定义的Carleson测度研究了α—Bloch空间和BMOA空间之间复合算子的有界性、紧性，并得到了复合算子有界性、紧性的充分条件。

关键词：α-Bloch空间, BMOA空间, 复合算子, Fredhoml复合算子, Carleson测度。

题目：半线性弹性动力学方程组余法奇性传播

姓名：雷远明，刘自山 (四川理工学院数学与统计学院)

发表刊物：数学物理学报 2009, 29(6)：1733-1739

摘要：该文在余法分布框架下研究半线性弹性动力学方程组原点初值奇性的传播。在建立了适当的余法分布空间后，利用弹性动力学方程组解的 Stokes - Helmholtz 分解，讨论了余法分布空间中函数的分解性质，通过构造解序列的方法证明了，如果初值函数在原点有适当余法奇性且 L^{∞} 有界，则初值问题存在唯一仅在方程组特征面上有余法奇性，而正则性更高的 L^{∞} 有界解。

关键词：半线性弹性动力学方程组, 奇性传播, 余法分布空间, 函数分解,模估计。

题目：Jensen-Pečarić-Svrtan 型不等式

姓名：谢巍 (四川理工学院数学与统计学院)

发表刊物：四川师范大学学报(自然科学版) 2009, 32(5): 621-625

摘要：借助于优超理论,在适当的假设下建立了如下的Jensen-Pečarić-Svrtan型不等式:

$$\frac{f(A(x))}{f(A(\varphi x))}=\frac{f_{n,n}(x)}{f_{n,n}(\varphi x)}\leq(\geq)\cdots\leq(\geq)\frac{f_{k+1,n}(x)}{f_{k+1,n}(\varphi x)}\leq(\geq)\frac{f_{k,n}(x)}{f_{k,n}(\varphi x)}\leq(\geq)\cdots\leq(\geq)\frac{f_{1,n}(x)}{f_{1,n}(\varphi x)}=\frac{A(f(x))}{A(f(\varphi x))},$$

这里, $A(\bullet)$ 表示算术平均,

$$\varphi:[a,b]\to\mathbb{R}, f:\left[a,\max_{t\in[a,b]}\{\varphi(t)\}\right]\to\mathbb{R}, f_{k,n}(x):=\frac{1}{\binom{n}{k}}\sum_{1\le i_1<\cdots<i_k\le n}f\left(\frac{x_{i_1}+x_{i_2}+\cdots+x_{i_k}}{k}\right), x\in[a,b]^n.$$

关键词：Jensen不等式, Pečarić-Svrtan不等式, 平均, 优超理论。

题目：伪回归中 $DW(h),\rho(h)$ 统计量的极限分布
姓名：蔺富明 (四川理工学院数学与统计学院), 彭作祥 (西南大学)
发表刊物：西南师范大学学报 2009,34(6):24-31
摘要：研究了滞后阶为 $h(h>1)$ 时，DW,ρ 统计量的极限分布，从而对伪回归产生时，出现高度自相关的残差作了理论解释。
关键词： $DW(h)$ 统计量, 极限分布, OLS回归, 自相关的残差。

题目：离散时间单重休假两部件并联可修系统的可靠性分析
姓名：余纱妙（四川理工学院数学与统计学院），唐应辉（四川师范大学），陈胜兰（重庆邮电大学）
发表刊物：系统科学与数学 2009,29(5): 617-629
摘要：利用离散向量Markov过程方法研究了离散时间单重休假两同型部件并联可修系统.在部件寿命服从几何分布,修理时间和修理工休假时间服从一般离散型概率分布的假定下,引入修理时间和休假时间尾概率,求得了系统的稳态可用度、稳态故障频度、待修概率、修理工空闲概率和休假概率, 以及首次故障前平均时间等可靠性指标.并通过具体数值实例展示了离散向量马氏链状态转移频度的具体计算方法.
关键词：单重休假, 并联可修系统, 离散向量Markov过程方法, 可靠性指标。

题目：两水平修理策略下的 M/(Mr, Gs)/1/N/N 机器维修模型稳态概率算法与性能分析
姓名：付永红 (四川理工学院), 余纱妙(四川理工学院理学院信息与计算科学系), 唐应辉 (四川师范大学)
发表刊物：山东大学学报(理学版) 2009,44(4): 72-78
摘要：应用补充变量方法研究了一个具有两水平(r, s)修理策略和两类修理工的并联机器维修模型。使用Laplace变换迭代方法和Laplace变换零点导数迭代方法获得了稳态下任意时刻系统故障机器数的概率分布。进一步, 讨论了

系统平均故障机器数, 平均待修机器数, 平均运行机器数, 单位时间故障次数, 机器的稳态可用度, 故障机器平均待修时间及平均停工时间等一系列性能指标。最后给出了几种特殊情形下的数值算例, 并从性能指标入手比较了单阈值r修理策略和两水平(r, s)修理策略的差异。

关键词: 机器维修模型, 有限源排队系统, 补充变量方法, 迭代, (r, s)修理策略。

题目: 推广的(t,T)策略下 M/G/1 排队系统队长分布的递推解及最优策略

姓名: 唐应辉 (四川师范大学), 黄蜀娟 (电子科技大学), 余纱妙 (四川理工学院数学与统计学院)

发表刊物: 工程数学学报 2009,26(2): 251-259

摘要: 本文考虑当系统变空后的延迟关闭时间为一般概率分布的(t, T)策略下的M/G/1/排队系统。通过引进"服务员忙期"和使用全概率分解技术, 首次研究了系统在任意时刻队长的瞬态性质, 导出了队长瞬态分布的L变换的递推表达式和稳态分布的递推表达式, 进一步得出了系统稳态队长的随机分解结果。最后, 建立系统的费用结构模型, 讨论了系统变空后的最优关闭时间, 并给出了具体数值计算例子。

关键词: M/G/1排队, 队长, 瞬态分布, 稳态分布, 最优策略。

题目: 完备稠序线性序拓扑空间上不稳定流形的边界点的周期性

姓名: 卢天秀 (四川理工学院数学与统计学院), 朱培勇(电子科技大学)

发表刊物: 西南大学学报 2009, 31(6): 139-142

摘要: 此文研究CDLOTS(完备稠序线性序拓扑空间)上连续自映射的不稳定流形的结构。首先证明了连续自映射在不动点处的不稳定流形是连通的。然后指出连续自映射的周期点处的不稳定流形必是有限个区间的并。最后, 利用所得结果证明了在具有最大最小元的CDLOTS上连续自映射的不稳定流形的边界点, 如果不属于流形本身, 则必为该连续自映射的周期点。

关键词: CDLOTS, 不稳定流形, 周期点, 连续自映射。

题目: 变时滞随机C-G神经网络的指数稳定性的新判据

姓名: 易春, 杨勇 (四川理工学院数学与统计学院)

发表刊物: 西南大学学报 (自然科学版) 2009, 9

题目: 基于随机向量的两类新背包密码体制

姓名: 王瑜, 李天增 (四川理工学院数学与统计学院)

发表刊物: 河南城建学院学报 2009, 5

题目：一种基于RSA算法的背包密码体制
姓名：王瑜，李天增 (四川理工学院数学与统计学院)
发表刊物：周口师范学报   2009, 9

题目：拓扑空间上连续自映射的非游荡点
姓名：卢天秀 (四川理工学院数学与统计学院), 朱培勇(电子科技大学)
发表刊物：西南民族大学学报   2009, 35(3)

题目：关于F群的一些充分条件
姓名：苏跃斌 (四川理工学院数学与统计学院)
发表刊物：内江师范学院学报   2009, 4

题目：TM波在密度周期变化等离子体圆波导的传播
姓名：陈永东 (四川理工学院数学与统计学院), 廖成惠 (泸州职业技术学院), 鄢
　　　扬 (电子科技大学)
发表刊物：内江师范学院学报   2009, 24(4)

题目：一类仿射李代数的顶点算子表示
姓名：王瑜，李天增(四川理工学院数学与统计学院)
发表刊物：内江师范学院学报   2009, 8

题目：混合时滞区间神经网络的鲁棒指数稳定性
姓名：易春 (四川理工学院数学与统计学院)
发表刊物：内江师范学院学报 2009, 2

题目：RSA密码体制的安全分析和应用
姓名：李天增 (四川理工学院数学与统计学院)
发表刊物：宜宾学院学报   2009, 6

题目：Hall-子群的正规化子与有线群结构
姓名：苏跃斌 (四川理工学院数学与统计学院)
发表刊物：宜宾学院学报 2009, 6

题目：RSA密码体制的安全分析和应用

姓名：王瑜，李天增 (四川理工学院数学与统计学院)

发表刊物：宜宾学院学报 2009, 6

题目：具有脉冲和时滞的细胞神经网络的全局指数稳定性

姓名：罗文品 (四川理工学院数学与统计学院), 钟守铭 (电子科技大学), 杨军 (中国民航飞行学院)

发表刊物：四川理工学院学报(自然科学版) 2009, 22(3)

题目：线性序拓扑空间上不稳定流形的映射性质

姓名：卢天秀 (四川理工学院数学与统计学院), 朱培勇 (电子科技大学)

发表刊物：四川理工学院学报 2009, 22(4)

题目：带有偏好性的投资决策模型及应用

姓名：刘自山(四川理工学院数学与统计学院)

发表刊物：四川理工学院(自然科学版) 2009, 22(5)

题目：抽象函数的积分

姓名：江治杰(四川理工学院数学与统计学院)

发表刊物：四川理工学院学报 2009, 22(5)

题目：RSA密码体制的安全分析和算法实现

姓名：李天增(四川理工学院数学与统计学院)

发表刊物：四川理工学院学报 2009, 22(2)

题目：循环矩阵的行列式及求逆方法

姓名：李天增 (四川理工学院数学与统计学院)

发表刊物：四川理工学院学报 2009, 22(4)

题目：关于卷积码编码方案的研究

姓名：王瑜，李天增 (四川理工学院数学与统计学院)

发表刊物：四川理工学院学报 2009, 22(3)

题目：有限群的子群弱补

姓名：苏跃斌 (四川理工学院数学与统计学院)

发表刊物：四川理工学院学报(自然科学版) 2009, 22(1)

题目：弱C-正规子群与有限群结构

姓名：苏跃斌 (四川理工学院数学与统计学院)

发表刊物：四川理工学院学报(自然科学版) 2009.22(3)

题目：若当标准型的几何证法

姓名：李麟 (四川理工学院数学与统计学院)

发表刊物：四川理工学院学报(自然科学版) 2009, 22(1)

题目：周期FC-群的πFrat(G)子群

姓名：王英 (四川理工学院数学与统计学院)

发表刊物：四川理工学院学报(自然科学版) 2009, 22(4)

题目：关于一阶微分核泛函的变分问题

姓名：郭时光 (四川理工学院数学与统计学院)

发表刊物：四川理工学院学报自然科学版 2009, 22(1)

题目：Pn-渐进线

姓名：刘仕田 (四川理工学院数学与统计学院)

发表刊物：高师理科学刊 2009, 29(3)

题目：平板混合边界层厚度近似解

姓名：罗静 (四川理工学院数学与统计学院)

发表刊物：高师理科学刊(自然科学版) 2009, 29(2)

题目：艾格玛尔密码体制的研究

姓名：徐春 (四川理工学院数学与统计学院)

发表刊物：中国科技纵横 2009, 11

题目：一种判别正项级数敛散性的方法

姓名：李放 (四川理工学院数学与统计学院)

发表刊物：科技资讯 2009, 35

题目：纯净水安全监控问题

姓名：岳健民 (四川理工学院数学与统计学院)

发表刊物：科技资讯 2009, 35