PERFORMANCE EVALUATION OF TANDEM QUEUES IN PARALLEL
A.A. Akinsete, O. Abe

A queueing network consisting of two subsystems in parallel is discussed. Each subsystem consists of two infinite capacity queues in tandem. The output from one queue forms the input into any of the queues ahead, with allowance to withdraw or cross over. Input into the system is through the leading channels with inter–arrival times having memoryless distributions, and departure from the system having a Poisson distribution. The distribution of the system size at equilibrium is sought. The system's performance is evaluated by comparing it with a classical network where cross over and withdrawal are not allowed. Queue discipline in both networks is FCFS.

ON THE CHARACTERS OF $\widetilde{q}^3 \rtimes GL(3,q)$
M.I. Al Ali, C.H. Hering, J. Schäeffer

In this paper we construct the characters of the group $\widetilde{q}^3 \rtimes GL(3,q)$ which is the semidirect product of the elementary abelian group of order q^3 by the general linear group $GL(3,q)$.

ABOUT SOME JOIN SPACES AND HYPERLATTICES
Ali Reza Ashrafi

The aim of this paper is to construct some join spaces and hyperlattices. Suppose s is a function from G into $P^\star(X)$. We define a hyperoperation $\overset{s}{\star}$ on the set G by, $a \overset{s}{\star} b = \{g \in G \mid s(g) \leq s(a) \cup s(b)\}$ and prove that if the image G is a $\vee$-subsemilattice of G or constitute a partition of X, then $(G, \overset{s}{\star})$ is a hypergroup. Next we consider the set of all sub-hypergroups of this hypergroup and define a hyperlattice structure on this set.

ON STRONG HYPERK-IDEALS OF HYPERK-ALGEBRAS
Young Bae Jun, Eun Hwan Roh

The notion of strong hyper$K$-ideals is introduced. We show that every strong hyper$K$-ideal is a (weak) hyper$K$-ideal and a hyper$K$-subalgebra.

ON COMMUTATIVE QUASI-HYPERRINGS
A. Rahnamai Barghi

We consider the concept of hyperring which is equivalent to the one formulated by M. De Salvo in [4]. The main purpose of this paper is introduce a new class of hyperstructures which are called commutative quasi-hyperrings. In a hyperring $(R, +, \cdot)$ if the zero element does not have essentially the absorbing property and in addition it satisfies the condition $-x \cdot y = (-x) \cdot y = x \cdot (-y)$, for all $x, y \in R$, then it is called a quasi- hyperring. In fact, the commutative quasi-hyperring is a generalization of the commutative ring. Furthermore several special definitions as: unit element, maximal hperideal, prime hyperideal and Jacobson radical are introduced and investigated. Then generalization of Nakayama's lemma for commutative quasi-hyperring is given.

THE PRIME IDEAL THEOREM FOR DISTRIBUTIVE HYPERLATTICES
A. Rahnamai Barghi

We extend the prime ideal theorem to distributive hyperlattices.

HYPER K_H–ALGEBRAS
R.A. Borzoei, A. Hasankhani

Let $(H, *, 0)$ be a hyper$K$-algebra and $q : H \to P_*(H)$ be a function, where $P_*(H)$ is the set of all nonempty subset of H. We consider the set $H_q = \{q(a) : a \in H\}$, and we answer to the following question: What are the conditions for the function q such that $(H_q, o, q(0))$ is a hyper$K$-algebra? Where "o" is a function of $H_q \times H_q \to P_*(H_q)$ which is defined as follows: $o : H_q \times H_q \to P_*(H_q)$ $(q(a), q(b)) \mapsto \{q(x) : x \in q(a) * q(b)\}$.

THE BLOCK EXTENSION PROPERTY
Radim Bělohlávek, Ivan Chajda

We show that the block extension property and the principal block extension property are equivalent in permutable varieties, generalizing the result of A. Day [1].

H_v-GROUPS ON THE SET $\{e, a, b\}$
Sang-Cho Chung, Byung-Mun Choi

The H_v-hyper structure, a new class of hyper structure, was introduced by T. Vougiouklis[1]. In this note, we find all the minimal H_v-groups on the set $\{e, a, b\}$ where e is a scalar, and three minimal H_v-groups with scalar unit e missed in [4]. Furthermore we get all minimal and maximal non-weak associative H_v-quasigroups. We use the mathematical program Mathematica 3.0 to find them.

INTERVAL–VALUED FUZZY IDEALS IN A HYPERRING
B. Davvaz

In this paper we introduce the concept of an interval–valued fuzzy ideal of a hyperring which is an extended notion of a fuzzy ideals of a hyperring, and give some properties of such ideals.

COHOMOGENEITY ONE REVOLUTION HYPERSURFACES OF THE SPHERE
A. Etemad, S.M.B. Kashani

We study some non negatively curved hypersurfaces of the sphere S^{n+1}, acted on by a compact Lie subgroup of its intrinsic isometries with principal orbits of codimension one. We prove that these hypersurfaces are revolution hypersurfaces if and only if all regular orbits are totally umbilic.

A VARIANT OF A CONVERGENT FIXED-POINT ALGORITHM THAT AVOIDS COMPUTING JACOBIANS
A. Ferrante, A. Lepschy, U. Viaro

The paper provides a generalization of the chord method for searching the fixed points of a multidimensional function. It is derived from the algorithm in [2] which is based, instead, on the tangent procedure. The method is preferable to the alternative technique from the point of view of numerical robustness and, sometimes, converges more rapidly.

AUTOMORPHISMS ON MULTILINEAR POLYNOMIALS IN PRIME RINGS
V. De Filippis

Let K be a commutative ring with unity, R a prime K-algebra of characteristic different from 2, I a non-zero two-sided ideal of R, φ a non-trivial automorphism on R and $f(x_1, .., x_n)$ a non-central multilinear polynomial over K, for some $a_1, .., a_n \in I$. Suppose that, for every $r_1, .., r_n \in I$, , $\varphi(f(r_1, .., r_n)) - f(r_1, .., r_n)$ is central or invertible in R. Then there exists a division ring D such that $R = D$ or $R = M_2(D)$, the ring of all 2×2 matrices over D.

WEAK HX–RINGS ON A RING
Yao Bingxue, Li Hongxing

In order to improve the results of HX–ring, the concept of weak HX–ring is proposed based on [1], [2] and the quasi–quotient ring is rediscussed. Under some conditions, some relations between quasi–quotient rings and regular weak HX–rings are established. Also some relations between uniform weak HX–rings and quotient rings are obtained.

EXISTENCE THEOREMS ON DELAY DIFFERENTIAL AND INTEGRO– DIFFERENTIAL INCLUSIONS WITH CONSTRAINTS IN BANACH SPACES
A.G. Ibrahim

We prove two existence theorems for delay differential inclusions with constraints; constant or moving, in infinite–dimensional Banach spaces. As a consequence, an existence theorem for a certain delay integro–differential inclusion is established. Some interesting known results are included in our results as special cases.

TRANSFORMATION SEMIGROUPS ADMITTING HYPERRING STRUCTURE
Yupaporn Kemprasit, Yuwaree Punkla

A semigroup S is said to *admit a hyperring structure* if there is a hyperoperation $+$ on S^0 such that $(S^0, +, \cdot)$ is a (Krasner) hyperring where $\cdot$ is the operation on S^0. In this paper, we give necessary and sufficient condition for a set X so that some transformation semigroups on X admit a hyperring structure.

TINY OBJECTS IN THE CATEGORY OF M-SETS
A. Madanshekaf, J. Tavakoli

It is known that in the presheaf category every representable is tiny, provided that the underlying category has binary products. In this paper it is shown, by a direct proof, that in the category of all right actions of the monoid M on abstract sets, M-**Sets**, the monoid M, as a right regular action, is tiny if and only if $M \times M$ is a retract of M itself, as M-sets. As a consequence, we show that in the category G-**Sets** of right actions of the group G there is no nontrivial tiny object.

TOPOLOGICAL LEFT AMENABILITY AND EXTREME POINTS
M. Moosai

Let S be a locally compact semitopological semigroup and $M(S)$ be the Banach algebra of all bounded regular Borel measures on S. In this paper, in certain situation, we study the relations of extreme points of the set topological left invariant means on $M(S)^*$ with multiplicative topological left invariant means on $M(S)^*$.

ON THE STRUCTURE OF POSITIVE SCALAR CURVATURE TYPE GRAPHS
Barbara Nelli

In this paper we study some aspects of the partial differential equation satisfied by a hypersurface of $\mathbf{R}^{n+1}$ of positive scalar curvature.

ON THE FUNDAMENTAL RELATION OF A MULTIALGEBRA
Cosmin Pelea

The object of this paper are multialgebras. The purpose of this paper is to give the form of the fundamental relation of a multialgebra, i.e. the smallest equivalence relation for which the quotient set, considered as a multialgebra, is a universal algebra.

THE FUNCTIONS $N(T)$ AND $N_0(T)$ OF THE RIEMANN ZETA FUNCTION
Aldo Peretti

Let denote with $N(T)$ the number of zeros of the Riemann zeta function in the critical *strip* with ordinates t such that $0 < t < T$, and $N_0(T)$ denote the same thing for the zeros in the critical line such that $0 < t < T$. Then, from the analytical expressions for the zeros we shall prove that $N(T) = N_0(T)$.

ON THE BOUNDARY CONDITIONS CHARACTERIZING A GENERAL DIFFE-RENTIAL OPERATORS WITH A COUNTABLE NUMBER OF SINGULAR POINTS
Sobhy El–sayed Ibrahim

The general ordinary quasi–differential expression M of nth order with complex coefficients and its formal adjoint M^+ are considered over a region (a, b) on the real line R, $-\infty \le a < b \le \infty$, on which the operator may have a finite number of singular points. By considering M over various subintervals on which singularities occur only at the ends, restrictions of the maximal operator generated by M in $L_w^2(a, b)$ which are regularly solvable with respect to the minimal operators $T_0(M)$ and $T_0(M^+)$. In addition to direct sums of regularly solvable operators defined on the separate subintervals, there are other regularly solvable restrictions of the maximal operator which involve linking the various intervals together in interface like style.

NEURAL NETWORKS FOR DECODING ERROR-CORRECTING CODES
Luca G. Tallini, Paul Cull

Error-correcting codes are used in a variety of areas from computers to communications. Ideally, one simply looks at a received message which may contain errors, and decodes it into the error-free message. Unfortunately, this decoding process can be quite complicated and might not exploit the maximum error correction capabilities of the code. While for the simple Hamming code the decoding is direct, for more complicated codes decoding may be an NP-complete problem. Further optimal decoding depends on the statistical properties of the error source, which might be very complex. For these reasons we propose the use of neural networks as decoders. In this paper, we report some experimental results which show that neural networks can be used to practically solve the general decoding problem.

FUZZY SETS AND JOIN SPACES ASSOCIATED WITH ROUGH SETS
Piergiulio Corsini, Violeta Leoreanu

Let μ_X be the rough membership function. One compares μ_A with $\mu_{A \cup B}$ and $\mu_{A \cap B}$, by the associated hyperoperations. One finds a condition such that a function $\mu \in [0, 1]^H$ may be a rough membership function.