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Forthcoming papers

The following papers will be published in future issues:

Jerzy Topp and Lutz Volkmann, Graphs with equal domination and independent domination numbers

Allan and Laskar have shown that $K_{1,3}$-free graphs are graphs with equal domination and independent domination numbers. In this paper new classes of graphs with equal domination and independent domination numbers are presented. In particular, the result of Allan and Laskar is generalized.

Iiro Honkala, All binary codes with covering radius one are subnormal

We prove that if a binary code has covering radius one then it is subnormal.

K.M. Koh and C.P. Teo, The chromatic uniqueness of certain broken wheels

Let $W(n, k)$ denote the graph of order n obtained from a wheel W_n by deleting all but k consecutive spokes. It is known that $W(n, 1)$ $(n \geq 4)$ and $W(n, 2)$ $(n \geq 4)$ are χ-unique. Chao and Whitehead (1979) showed that $W(n, 3)$ $(n \geq 5)$ and $W(n, 4)$ $(n \geq 6)$ are also χ-unique but pointed out that $W(7, 5)$ is not so. In this note, we prove that $W(n, 5)$ is χ-unique for $n \geq 8$.

Douglas Bauer, Genghua Fan and Henk Jan Veldman, Hamiltonian properties of graphs with large neighborhood unions

Let G be a graph of order n, $\sigma_k = \min\{\sum_{i=1}^{k} d(v_i)\colon (V_1, \ldots, V_K\}$ is an independent set of vertices in $G\}$, $NC = \min\{|N(u) \cup N(v)| : uv \notin E(G)\}$ and $NC2 = \min\{|N(u) \cup N(v)| : d(u, v) = 2\}$. Ore proved that G is hamiltonian if $\sigma_2 \geq n \geq 3$, while Faudree et al. proved that G is hamiltonian if G is 2-connected and $NC \geq \frac{1}{3}(2n - 1)$. It is shown that both results are generalized by a recent result of Bauer et al. Various other existing results in hamiltonian graph theory involving degree-sums or cardinalities of neighborhood unions are also compared in terms of generality. Furthermore, some new results are proved. In particular, it is shown that the bound $\frac{1}{3}(2n - 1)$ on NC in the result of Faudree et al. can be lowered to $\frac{1}{3}(2n - 3)$, which is best possible. Also, G is shown to have a cycle of length at least $\min\{n, 2(NC2)\}$ if G is 2-connected and $\sigma_3 \geq n + 2$. A D_λ-cycle (D_λ-path) of G is a cycle (path) C such that every component of $G - V(C)$ has order smaller than λ. Sufficient conditions of Lindquester for the existence of Hamilton cycles and paths involving $NC2$ are extended to D_λ-cycles and D_λ-paths.

Gustav Burosch, Ivan Havel and Jean-Marie Laborde, Distance monotone graphs and a new characterization of hypercubes

The aim of this paper is to study the class of s.c. distance monotone graphs which arise naturally when investigating some intersection properties of graphs. A new characterization of hypercubes is also obtained.

Ce papier est consacré aux graphes que l'on peut appeler 'distance monotones' et qui s'introduisent naturellement pour l'étude de propriétés intersectives de graphes. Ils permettent une nouvelle caractérisation du graphe de l'hypercube.

Wende Chen and Torleiv Kløve, Lower bounds on multiple difference sets

We give a lower bound on the maximal element in a multiple difference set.

R.E. Peile, Inclusion transformations: (n, m)-graphs and their classification

Several combinatorial objects of general interest share similar definitions, i.e. complete bipartite graphs, Eulerian graphs and two-graphs. This article generalizes this definition to obtain a class of combinatorial objects known as (n, m)-graphs. A classification of (n, m)-graphs is presented that is complete for a big enough set of points. In the course of this classification, a theorem is proved that seems fundamental to the study of: the inclusion relation; (n, m)-graphs; certain sub-codes of the Reed-Muller codes and the ireducible representations of the symmetric group that arise from two-part partitions.

Harold Simmons, Generalized deviations of posets

The deviation and co-deviation of a poset (Lemonnier, 1972) has been generalized by Pouzet and Zaguia (1985) and used by Goodearl and Zimmerman-Huisgen (1986), and Lau, Teply and Boyle. Here I will put these generalizations into an appropriate context which is conceptually neater and seems to offer smoother computational facilities.

Elke Wilkeit, The retracts of Hamming graphs

Quasimedian graphs are precisely the retracts of Hamming graphs (i.e., of cartesian products of complete graphs) and a retraction can be found in polynomial time. A simple characterization for quasimedian graphs is given. Our main tools are the concept of gated subgraphs and a contraction of edges which preserves the essential properties of the investigated graphs.

Xiaomin Bao, On a Mouyart's conjecture

In this note we have partly proved a Mouyart's conjecture by exhibiting a SIDS(17), a SIDS(20) and a SIDS(24).

Andrei Baranga, The contraction principle as a particular case of Kleene's fixed point theorem

Fixed point theorems are an important tool in the whole mathematics. For instance, the denotational semantics of programming languages is essentially based on such theorems. Partially ordered sets and Kleene's fixed point theorem are the mathematical support for a great amount of semantic models, (Bakker (1980)). In the last years attempts have been made to replace partially ordered sets by metric spaces, and Kleene's fixed point theorem by the Benach contraction principle ((de Bakker and Zucker (1983), and Rudin (1953)).

The aim of the present paper is to prove that the latter theorem may be regarded as a particular case of the former one. This is done by embedding a metric space in an ordered set. We note that the problem of the connection between these two fixed point theorems has been solved, in some special cases only, by Baranga and Popescu (1987), and by Livercy (1978) (for compact intervals of the real line and for compact metric spaces, respectively).