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SUMMARIES OF ARTICLES PUBLISHED IN THIS ISSUE

(Publication of these summaries is permitted)

BOHDAN ZELINKA, Liberec: *Groups and polar graphs*. Čas. pěst. mat. 101 (1976), 2—6. (Original paper.)

Polar graphs represent a new type of graphs which was introduced by F. Zitek. In this paper a certain polar graph $PG(\mathcal{G}, A)$ for a given group \mathcal{G} and its subset A is defined and its properties are investigated.

ALEXANDER DOKTOR, JINDŘICH NEČAS, RUDOLF ŠVARC, Praha: *Poznámka k aplikacím Laplaceovy transformace na abstraktní diferenciální rovnice parabolického typu*. (A remark to applications of the Laplace transform to abstract differential equations of parabolic type.) Čas. pěst. mat. 101 (1976), 7—19. (Original paper.)

The solution of abstract linear differential equation $du/dt + Au(t) = f(t)$ with initial condition $u(0) = u_0$ is obtained by means of the Laplace transform of functions with values in Hilbert spaces. This generalization of the Laplace transform is briefly built up in the appendix. Existence theorems proved by this method correspond to those obtained by other methods, e.g. by means of the theory of analytic semigroups.

JAROMÍR KRYS, Hradec Králové: *O jednom modelu 2k-rozměrného afinního prostoru*. (Über ein Modell des 2k-dimensionalen affinen Raumes.) Čas. pěst. mat. 101 (1976), 20—27. (Originalartikel.)

In der Arbeit werden Konfigurationen in A_{2k} mit Hilfe der Konfigurationen in A_k konstruiert. Der Verfasser benützt dabei ein spezielles Modell von A_{2k} , dessen Konstruktion am Anfang der Arbeit beschrieben ist.

MIROSLAV DONT, Praha: *A note on a heat potential and the parabolic variation*. Čas. pěst. mat. 101 (1976), 28—44. (Original paper.)

This note is a complement of the author's article *On a heat potential* (Czech. Math. J. 25 (100), (1975), 84—109). The first part is devoted to the non-tangential limits of the heat potential Tf , which was defined in the above mentioned article, specially to the limit of a form $\lim_{x \rightarrow \varphi(t)_+} Tf(x, t)$,

$\lim_{x \rightarrow \varphi(t)_-} Tf(x, t)$. A necessary and sufficient condition for the existence of

these limits is found. In the second part it is proved that there exists a continuous function of bounded variation such that the parabolic variation of this function is infinite at almost all points of its graph.

VÁCLAV HAVEL, Brno: *Note on weak epimorphisms of 3-nets without singular points*. Čas. pěst. mat. 101 (1976), 60—68. (Original paper.)

For 3-nets $\mathcal{N}, \mathcal{N}'$ (without singular points) and a surjective mapping π of points of \mathcal{N} onto points of \mathcal{N}' the author investigates the relations of the following properties of π : preserving of the collinearity of two points, preserving of the collinearity of three points, preserving of lines or preserving of the line parallelity.

SVATOPLUK FUČÍK, Praha: *Boundary value problems with jumping nonlinearities*. Čas. pěst. mat. 101 (1976), 69–87. (Original paper.)

The nonlinear differential equation $u'' + \psi(u) = p$ with initial conditions $u(0) = u(\pi) = 0$ is considered. Denote $a_- = \lim_{\xi \rightarrow -\infty} \psi(\xi)/\xi$, $a_+ = \lim_{\xi \rightarrow +\infty} \psi(\xi)/\xi$.

The problem of solvability of the above boundary value problem is dealt with if n^2 ($n = 2, 3, \dots$) is a point of the interval with end-points a_- and a_+ . Solvability is proved for any right hand side which is a result quite different from that obtained in the case $n = 1$ by A. Ambrosetti and G. Prodi.

JÁN JAKUBÍK, Košice: *Lattice ordered groups with cyclic linearly ordered subgroups*. Čas. pěst. mat. 101 (1976), 88–90. (Original paper.)

The aim of this paper is to give a solution to a problem proposed in a recent paper of P. Conrad and D. Montgomery concerning linearly ordered subgroups of a lattice ordered group.

Jiří PAROBK, Praha: *On the number of normal subgroups of a given prime index*. Čas. pěst. mat. 101 (1976), 91–94. (Original paper.)

For the number $s_p(G)$ of normal subgroups of a given prime index p in a group G of order n the following estimate is obtained: $s_p(G) \leq (p^r - 1)/(p - 1)$, where r is the greatest integer such that $p^r \mid n$. Then this estimate is proved to be the best possible by finding a class of groups for which the above relation becomes an equality.

PAVEL BARTOŠ, Bratislava: *O číselnoteoretickej funkcii $d(n)$* . (Über die zahlentheoretische Funktion $d(n)$.) Čas. pěst. mat. 100 (1975), 96–97. (Originalartikel.)

Der Artikel enthält einfache Abschätzungen der Anzahl $d(n)$ der positiven Teiler der Zahl n , welche an der Kenntnis des grössten und kleinsten Primzahlteilers der Zahl n begründet sind.

JOSEF KRÁL, Praha: *Jeden příklad harmonického svazku*. (An example of a harmonic sheaf.) Čas. pěst. mat. 101 (1976), 98–99. (Original paper.)

An example is constructed of a non-degenerate harmonic sheaf \mathcal{H} on a locally compact connected space X which is not locally connected; \mathcal{H} associates with each open set $\mathcal{U} \subset X$ a vector-space $\mathcal{H}(\mathcal{U})$ of continuous real-valued function on \mathcal{U} such that the sheaf axiom, the base axiom and the Brelot convergence axiom are satisfied. (This example contrasts with a result of N. Boboc, C. Constantinescu and A. Cornea who showed that X must automatically be locally connected if the Brelot convergence axiom is replaced by the Bauer convergence axiom.)

