

Summaries of articles published in this issue

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SUMMARIES OF ARTICLES PUBLISHED IN THIS ISSUE

(Publication of these summaries is permitted)

JURAJ VIRŠÍK, Bratislava: *A generalized point of view to higher order connections on fibre bundles*. Czech. Math. J. 19 (94), (1969), 110—142. (Original paper.)

In the first chapter, Author gives the compilation of Ehresmann's results on differentiable groupoids and their prolongations. The further chapter deals with connections of higher orders on differentiable groupoids of operators on a differentiable manifold, which is a natural generalization of principal fibre bundles.

JAN KUČERA, Praha: *Fourier L_2 -transform of distributions*. Czech. Math. J. 19 (94), (1969), 143—153. (Original paper.)

In the article basic properties of Fourier L_2 -transform on some subspaces of the Schwartz's space S' are studied.

JAN KUČERA, Praha: *Laplace L_2 -transform of distributions*. Czech. Math. J. 19 (94), (1969), 181—189. (Original paper.)

In the article Author's results about Fourier L_2 -transform on some subspaces of the Schwartz's space S' are transferred to the Laplace transform.

П. К. Осматеску, Кишинев: *Близость на T_1 -пространствах*. Czech. Math. J. 19 (94), (1969), 193—207. (Оригинальная статья.)

В этой работе вводится близость на T_1 -пространства аксиомами предложенными А. В. Архангелским. Исследуются взаимное отношение между близостями на пространстве X и его ω -расширении.

ZDENĚK HUSTÝ, Brno: *Asymptotische Eigenschaften der Differentialgleichung $y'' + 2a_1(x)y' + a_2(x)y = 0$* . Czech. Math. J. 19 (94), (1969), 208—240. (Originalartikel.)

In der Arbeit werden hinreichende Bedingungen für die asymptotische Gleichheit der Lösungen der Differentialgleichung $y'' + \sum_{i=1}^2 \binom{2}{i} a_i y^{(2-i)} = 0$ und der perturbierten Gleichung $y'' + \sum_{i=1}^2 \binom{2}{i} [a_i + p_i] y^{(2-i)} = 0$ abgeleitet. Diese Ergebnisse kann man auf Bilder von zwei homogenen linearen Differentialgleichungen anwenden und Formeln erhalten, welche asymptotische Eigenschaften einer großen Klasse homogener linearer Gleichungen zweiter Ordnung beschreiben.

ROBERT KAUFMAN, Urbana: *On a class of semi-group algebras*. Czech. Math. J. 19 (94), (1969), 248—251. (Original paper.)

Hewitt and Zuckerman initiated the study of certain Banach algebras based on commutative semigroups. In this note an attempt is made to combine the approach with the functional-analysis approach.

B. CSÁKÁNY, G. POLLÁK, Szeged: *O grafie podgrupp konечной группы*. Czech. Math. J. 19 (94), (1969), 241—247. (Оригинальная статья.)

Понятие графа подполугрупп некоторой полугруппы было введено Й. Босаком. В настоящей работе вводится аналогичное понятие графа подгрупп конечных групп. Доказываются предположения о связности, а также оценки о диаметре графа конечных групп.

JINDŘICH NEČAS, Praha: *Les équations elliptiques non linéaires*. Czech. Math. J. 19 (94), (1969), 252—274. (Mémoire scientifique original.)

Cet article est un aperçu des méthodes à la solution des problèmes aux limites pour les équations elliptiques non linéaires. Les questions d'existence, d'unicité et de régularité sont considérées.

S. P. BANDYOPADHYAY, Moscow: *Valuations in groups and rings*. Czech. Math. J. 19 (94), (1969), 275—276. (Original paper.)

In the previous paper, the author established a connection between the valuations of groups and rings and the homomorphisms of the lattice of subgroups and the lattice of ideals into the valuation semilattice and lattice respectively. In this paper these results have been strengthened and as such, the said connection can be given in a more explicit form.

E. SENETA, D. VERE-JONES, Canberra: *On a problem of M. Jiřina concerning continuous state branching processes*. Czech. Math. J. 19 (94), (1969), 277 to 283. (Original paper.)

In the present note the authors consider the homogeneous discrete-parameter branching process $\{X_n\}$, $n = 0, 1, 2, \dots$ on $[0, \infty)$, following the introduction of very general versions of such processes by M. Jiřina. Denoting the criticality parameter by m , the authors show in particular that when $m < 1$, there may exist a sequence of constants $\{c_n\}$ such that the random variables $\{X_n/c_n\}$ converge in law to a proper nondegenerate random variable. (In fact the necessary and sufficient condition is given.) A corresponding result for the supercritical case ($m > 1$), which is a generalization of the martingale theorem, is also obtained. In particular no such sequence $\{c_n\}$ can exist if $m = \infty$.

VLASTIMIL DLAB, Canberra: *Matrix representation of torsion-free rings*. Czech. Math. J. 19 (94), (1969), 284—298. (Original paper.)

The aim of this paper is to give a brief account on a characterization of torsion-free rings in terms of matrix rings over division rings. In particular, the main results allow an immediate deduction of generalized Goldie and Wedderburn-Artin Theorems.

ZBYNĚK NÁDENÍK, Praha: *Über Geometrie im Grossen der Enveloppen von konvexen Zylinderflächen*. Czech. Math. J. 19 (94), (1969), 299—317. (Originalartikel.)

Für diese Enveloppen werden die Formeln hergeleitet, welche mit den wohlbekannteren Minkowskischen Formeln für die Masszahlen der konvexen Körper eng verwandt sind.

(Continued on the back cover.)

JAMES T. SEDLOCK, Storrs: *Green's relations on a periodic semigroup*. Czech. Math. J. 19 (94), (1969), 318—323. (Original paper.)

Necessary and sufficient conditions on a periodic semigroup are determined in order that one of the Green's relations coincide with the natural equivalence K introduced by Schwarz.

HANA LOVICAROVÁ, Praha: *Periodic solutions of a weakly nonlinear wave equation in one dimension*. Czech. Math. J. 19 (94), (1969), 324—342. (Original paper.)

In this paper the existence of 2π -periodic solution of the problem $\square u = \varepsilon f(t, x, u, u_t, u_x)$; $u(t, 0) = u(t, \pi) = 0$ for $\varepsilon < \varepsilon_0$ and the existence and continuous dependence on ε of periodic solution of the equation $\square u = \varepsilon f(t, x, u)$ is proved under certain assumptions on the function f .

H. D. PANDE, Nedlands: *Some theorems on the projective derivative of certain entities in conformal Finsler spaces*. Czech. Math. J. 19 (94), (1969), 343—348. (Original paper.)

It is possible to adjoin some projective invariants to Finsler space. The changes of these invariants by a conformal change of Finsler metrics is studied in present paper.

ZBYNĚK NÁDENÍK, Praha: *Über die Enveloppe von Zylinderflächen konstanter Breite*. Czech. Math. J. 19 (94), (1969), 349—355. (Originalartikel.)

Seitenstücke zu den bekannten Eigenschaften und Formeln für Eiflächen konstanter Breite.

ZBYNĚK NÁDENÍK, Praha: *Eine Kennzeichnung der Enveloppen von achsensymmetrischen konvexen Zylinderflächen*. Czech. Math. J. 19 (94), (1969), 356—362. (Originalartikel.)

Kennzeichnende Beziehungen zwischen den Hauptkrümmungsradien in der Gegenpunkten.

MILOSLAV JŮZA, Praha: *Systèmes monoparamétriques des espaces projectifs*. Czech. Math. J. 19 (94), (1969), 363—367. (Mémoire scientifique original.)

Dans ce travail, il y a une généralisation de quelques notions de la théorie de Čech des surfaces réglées sur les systèmes monoparamétriques des espaces projectifs dans un espace projectif de la dimension arbitraire.