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PROBLÈMES

P 21, R 3. Our R 2 was inexact. The paper quoted therein (¹) contains a (positive) solution of the problem only under assumption of Martin's Axiom. On the other hand, we were recently informed by E. Grzegorek that the answer is positive even without Martin's Axiom or any additional assumption (²).

I.2, p. 149, XXXVII.1, p. 175, et XXXIX.1, p. 189.

(¹) E. Grzegorek, *Remarks on σ-fields without continuous measures*, Colloquium Mathematicum 39 (1978), p. 73-75.

(²) E. Grzegorek, Bulletin de l'Académie Polonaise des Sciences, Série des sciences mathématiques, astronomiques et physiques (to appear).

P 33, R 1. La réponse est „non" pour la classe K_1, même au sens d'isomorphisme (³), „oui" pour la classe K_2, au sens d'isomorphisme (⁴), et „non" pour la classe K_3, même au sens d'isomorphisme (⁵).

I.2, p. 152.

(³) W. Szlenk, *The non-existence of a separable reflexive Banach space universal for all reflexive separable Banach spaces*, Studia Mathematica 30 (1968), p. 53-61.

(⁴) A. Pełczyński, *Universal bases*, ibidem 32 (1969), p. 247-268.

(⁵) P. Wojtaszczyk, *On separable Banach spaces containing all separable reflexive Banach spaces*, ibidem 37 (1971), p. 197-202.

P 34, R 1. Une réponse positive partielle à la première question a été trouvée par Mycielski (⁶).

I.2, p. 152.

(⁶) Jan Mycielski, *Remarks on invariant measures in metric spaces*, Colloquium Mathematicum 32 (1974), p. 105-112.

P 179, R 1. La réponse est positive([7]).

IV.2, p. 244.

([7]) G. Choquet et C. Foiaş, *Solution d'un problème sur les itérés d'un opérateur positif sur $C(K)$ et propriétés de moyennes associées*, Annales de l'Institut Fourier 25 (3 et 4) (1975), p. 109-129.

P 365, R 1. The answer is positive ([8]).

IX.1, p. 168.

([8]) C. Bessaga and A. Pełczyński, *The space of Lebesgue measurable functions on the interval* [0, 1] *is homeomorphic to the countable infinite product of lines*, Mathematica Scandinavica 27 (1970), p. 132-140; see also the same author's *Selected topics in infinite-dimensional topology*, Warszawa 1975 (especially Chapter VI, § 7).

P 485, R 1. A solution has been found independently by Grätzer ([9]) and by Burmeister ([10]).

XIII.1, p. 126.

([9]) G. Grätzer, *Equivalence relations of cardinals induced by equational classes of infinitary algebras*, Notices of the American Mathematical Society 13 (1966), p. 632-633.

([10]) P. Burmeister, *Über die Mächtigkeiten und Unabhängigkeitsgrade der Basen freier Algebren, I*, Fundamenta Mathematicae 62 (1968), p. 165-189.

P 617, R 1. The answer is positive ([11]).

XVII.2, p. 368.

([11]) Б. С. Кашин, *Об устойчивости безусловной сходимости почти всюду*, Математические заметки 14 (1973), p. 645-654 (especially p. 651). See also B. Maurey et G. Pisier, *Un théorème d'extrapolation et ses conséquences*, Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences, Paris, 277 (1973), p. 38-52.

P 714, R 1. The answer is positive ([12]).

XXII.2, p. 337.

([12]) G. A. Edgar, *A non-compact Choquet theorem*, Proceedings of the American Mathematical Society 49 (1975), p. 354-358.

P 988, R 1. A solution was found by Gross and Rosen ([13]).

XXXVI.1, p. 163.

([13]) J. L. Gross and L. H. Rosen, *A combinatorial characterization of planar 2-complexes*, Colloquium Mathematicum 44 (1982) (to appear).

ANDRZEJ KURPIEL AND JÓZEF SŁOMIŃSKI (TORUŃ)

P 1178. Formulé dans la communication *On some adjunctions between the categories of adjunction-morphisms and monad-morphisms.*

Ce fascicule, p. 214.

MURRAY G. BELL (WINNIPEG, MANITOBA)

P 1179 - P 1181. Formulés dans la communication *A first countable supercompact Hausdorff space with a closed G_δ non-supercompact subspace.*

Ce fascicule, p. 233 et 240.

B. S. SPAHN (WARSZAWA)

P 1182. Formulé dans la communication *On topologies generating the Effros Borel structure and on the Effros measurability of the boundary operation.*

Ce fascicule, p. 258.

J. JURKIEWICZ (WARSZAWA)

P 1183. Formulé dans la communication *Chow ring of projective non-singular torus embedding.*

Ce fascicule, p. 266.

K. IZUCHI (YOKOHAMA)

P 1184 et **P 1185.** Formulés dans la communication *The structure of L-ideals of measure algebras. II.*

Ce fascicule, p. 290.

OLAF VON GRUDZINSKI UND SÖNKE HANSEN (KIEL)

P 1186. Formulé dans la communication *Über Wellenfrontmengen von Distributionen und singuläre Träger von Faltungen.*

Ce fascicule, p. 318.

JAMES E. WEST (ITHACA, NEW YORK)

P 1187. Let $E \xrightarrow{p} B$ be a locally trivial fiber bundle with fiber F and suppose E, B and F to be compact metric. Under what conditions (if any) is $2^E \xrightarrow{2^p} 2^B$ a locally trivial bundle with fiber 2^F? In particular, if E, B, F are ANR's? What about Serre fibrations? (For Hurewicz fibrations the answer is "not".)

New Scottish Book, Probl. 941, 5. 4. 1978.

P 1188. Let $E \xrightarrow{p} B$ be a Hurewicz fibration with each fiber homeomorphic to a given Hilbert cube manifold F. If E and B are also Hilbert cube manifolds, under what conditions is p a locally trivial bundle?

New Scottish Book, Probl. 942, 5. 4. 1978.

H. TORUŃCZYK (WARSZAWA) AND JAMES E. WEST (ITHACA, NEW YORK)

P 1189. Let $E \xrightarrow{p} B$ be a Hurewicz fibration with the Hilbert cube B, a compact ANR E, and each fiber of p being a non-degenerate absolute retract. Must there exist two cross-sections σ and τ of p with disjoint images? If not, give a characterization of those cross-sections σ for which there exists a cross-section τ with image disjoint from that of σ.

New Scottish Book, Probl. 943, 5. 4. 1978.

JAN MIKUSIŃSKI (KATOWICE)

P 1190. In the space l_1 of absolutely summable sequences of real numbers we consider O-convergence. That is, a sequence of elements $x_n = (\xi_{n1}, \xi_{n2}, \ldots) \in l_1$ converges to $x = (\xi_1, \xi_2, \ldots) \in l_1$ if it converges coordinatewise (i.e., $\xi_{ni} \xrightarrow{n} \xi_i$ for each i) and, moreover, is bounded by some element $b = (\beta_1, \beta_2, \ldots) \in l_1$ (i.e., $|\xi_{ni}| \leqslant \beta_i$ for each i). We say that a sequence of elements $x_n \in l_1$ is an *O-Cauchy sequence* if for each strictly increasing sequence p_n of positive integers the sequence of differences $x_{p_{n+1}} - x_{p_n}$ converges to 0. Is every O-Cauchy sequence convergent?

Letter of June 1, 1978.

P 1190, R 1. The answer is negative ([14]).

([14]) J. Bourgain, *Non-completeness of some convergence on l^1*, Colloquium Mathematicum 44 (1981) (to appear).

GEORGE M. RASSIAS (ATHENS)

P 1191. Let M^n be a closed (i.e. compact without boundary) C^∞ differentiable manifold of dimension n and let $f\colon M \to R$ be a C^∞-function on M^n. Find necessary and sufficient conditions on M^n so that

$$\min_{f \in \Omega} \sum_{i=0}^{n} c_i(M^n, f) = \sum_{i=0}^{n} \min_{f \in \Omega} c_i(M^n, f) \quad \text{for } n \geqslant 4,$$

where Ω is the space of Morse functions on M^n and $c_i(M^n, f)$ is the number of critical points of index i of f in Ω. It is known ([15]) that the above equality holds for $n < 4$, for any closed M^n. Of course, it does hold if M^n $(n > 4)$ is simply connected.

Letter of November 20, 1979.

([15]) G. M. Rassias, *On the Morse-Smale characteristic of a differentiable manifold*, Bulletin of the Australian Mathematical Society 20 (1979), p. 281-283.