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Proceedings of the International Colloquium
on Nuclear Spaces and Ideals in Operator Algebras
Warsaw, 18—25 June, 1969

EDITED BY

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W A R S Z A W A — W R O C Ł A W 1970

FOREWORD

The International Colloquium on Nuclear Spaces and Ideals in Operator Algebras was held in Warsaw from June 18 to June 25, 1969.

Organizing Committee: Czesław Bessaga, Aleksander Pełczyński (chairman), Stefan Rolewicz, Zbigniew Semadeni and Wiesław Żelazko.

The Colloquium was sponsored by the Institute of Mathematics of the Polish Academy of Sciences.

The Organizing Committee acknowledges its gratitude to the International Mathematical Union for travel grants given to some participants of the Colloquium, to the Institute of Mathematics of the Polish Academy of Sciences for financial support and all other facilities, to the Institute of Mathematics of the University of Warsaw for giving to the disposal of the Colloquium the lecture rooms and to all persons who were of help to the organizers for their effort.

* * *

The Proceedings of the Colloquium consist of three parts:

Part I contains the reports submitted to the Colloquium and some papers of the participants closely related to their lectures.

Part II consists of short summaries of those reports submitted to the Colloquium the full text of which is not contained in this volume.

Part III contains unsolved problems proposed by the participants.

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PROGRAM AND LIST OF PARTICIPANTS

PROGRAM

Wednesday, June 18.

Morning Session 11.00 a.m. - 12.30 p.m.

Chairman: K. Kuratowski

B. S. Mitjagin, *Fréchet spaces with a unique unconditional basis.*

R. M. Dudley, *Small operators between Banach and Hilbert spaces.*

Afternoon Sessions 3.00 - 5.30 p.m.

Section A. Chairman: B. R. Gelbaum

S. Chevet, *p -ellipsoïdes de l^q . Mesures cylindriques gaussiennes.*

W. Wojtyński, *On conditional bases in non-nuclear Fréchet spaces.*

C. Bessaga, *A theorem on complemented subspaces of nuclear spaces.*

W. H. Ruckle, *Diagonal operators and the diagonal of a nuclear operator.*

Section B. Chairman: M. M. Rao

C. A. McCarthy, *Optimal conditioning of operators.*

D. Przeworska-Rolewicz, *On algebraic derivative.*

J. Musielak and A. Waszak, *On some countably modular spaces.*

Thursday, June 19.

Morning Session 9.30 a.m. - 1.00 p.m.

Chairman: L. Schwartz

A. Pietsch, *Ideale von S_p -Operatoren in Banachräumen.*

P. Saphar, *Produits tensoriels topologiques et classes d'opérateurs.*

L. Waelbroeck, *Tensor products of locally pseudoconvex and nuclear spaces.*

Afternoon Sessions 2.30 - 4.20 p.m.

Section A. Chairman: G. Neubauer

I. Stephani, *Eine topologische Methode zur Erzeugung von Operatorn-idealen über Banachräumen.*

N. Tomczak, *A remark on (p, q) -absolutely summing operators in L_p -spaces.*

S. Goldberg, *The conjugate of the product of operators.*

Section B. Chairman: D. Skordev

W. Mlak, *Decompositions of operator representations of function algebras.*

M. M. Rao, *Tensor products, metric approximation and contractive projections.*

M. Duchoň, *Tensor products of vector measures.*

Friday, June 20.

Morning Session 9.30 a.m. - 1.00 p.m.

Chairman: G. Köthe

L. Schwartz, *Mesures cylindriques, opérateurs radonifiants et opérateurs décomposables.*

S. Kwapień, *Applications of p -absolutely summing operators.*

A. Persson, *p -integral operators.*

Afternoon Sessions 3.00 - 5.30 p.m.

Section A. Chairman: P. C. Baayen

U. Schlotterbeck, *Elementary characterization of operators with absolutely summing adjoint.*

J. Schmets, *Modulus of prenuclear maps in ordered spaces.*

Yu. N. Vladimírski, *On strictly cosingular operators in locally convex spaces.*

A. Mallios, *On topological algebra sheaves of a nuclear type.*

K. Floret, *Bases in sequentially retractive spaces.*

Section B. Chairman: D. J. H. Garling

G. Albinus, *Approximationgeschwindigkeit in F -Räumen (E, q) .*

W. Szlenk, *On weakly convergent sequences in Banach spaces.*

Z. Semadeni and A. Wiweger, *Theorems of Eilenberg-Watts type for projective tensor products.*

C. Fenske and E. Sock, *Nuclearity and local convexity of sequence spaces.*

N. J. Kalton, *The normalization of Schauder bases of locally convex spaces.*

Saturday, June 21.

Morning Session 9.30 a.m. - 1.00 p.m.

Chairman: N. Aronszajn

A. Pełczyński, *Some open problems on nuclear spaces and absolutely summing operators.*

S. Rolewicz, *Open problems connected with non-locally convex nuclear spaces.*

G. M. Henkin (presented by B. S. Mitjagin), *On non-isomorphism of Banach spaces of holomorphic functions.*

J. S. Cohen, *A characterization of Hilbert space using absolutely 2-summing operators and their conjugates.*

S. Kwapień, *On L. Schwartz's theorem on duality for radonifying operators.*

Monday, June 23.

Morning Session 9.30 a.m. - 1.00 p.m.

Chairman: L. Nachbin

L. Gross, *Nuclear operators and potential theory on Hilbert spaces.*

G. Köthe, *On the structure of nuclear spaces.*

B. R. Gelbaum, *Uniform Banach algebras and bundles*

Afternoon Sessions 3.00 - 5.30 p.m.

Section A. Chairman: A. Persson

H. Triebel, *Erzeugung nuklearer Räume durch singulare elliptische Differentialoperatoren.*

M. Zerner, *Developpements on séries de polynômes orthogonaux.*

T. Pytlik, *A nuclear space of functions on a locally compact group.*

E. Sock, *Montel spaces of Hölder continuous functions.*

Section B. Chairman: R. G. Bartle

D. Skordev, *Linear operators with sufficiently many given eigenvectors.*

N. T. Peck, *Some questions concerning support points.*

M. de Wilde, *On the equivalence of weak and Schauder bases.*

W. Szczyrba, *On differentiability in some class of locally convex spaces.*

Tuesday, June 24.

Morning Session 9.30 a.m. - 1.00 p.m.

Chairman: A. Pietsch

G. Neubauer, *Fredholm links and perturbation theorems.*

N. Aronszajn, *Finite-dimensional perturbations.*

B. Gramsch, *On analytic perturbations of Fredholm operators.*

Afternoon Sessions

Section A. 3.00 p.m. - 6.00 p.m.

Chairman: H. G. Garnir

D. J. H. Garling, *On ideals of operators in Hilbert spaces.*

Yu. L. Daleckii, *Integration in functional spaces and equations in functional variables.*

D. van Dulst, *Perturbation theory in locally convex spaces.*

G. Dennler, *Unbeschränkt teilbare Elemente in L^p -Räumen. Streng unabhängige zufällige Distributionen.*

Section B. 5.00 p.m. - 6.00 p.m.

Chairman: B. Duchoň

I. Dobrakov, *A representation theorem for unconditionally converging linear operators on $C_0(T, X)$.*

M. L. Jonac and C. Samuel, *Sur les espaces complétés de $C(S)$* .
 E. Dubinsky, *Equivalent nuclear systems*.

Wednesday, June 25.

Morning Session 9.30 a.m. - 12.30 p.m.

Chairman: B. S. Mitjagin

Y. Kōmura, *Duality of linear spaces of functions and nuclearity of solution spaces*.

P. Porcelli and R. R. Butts, *Multiplicity theory*.

L. Nachbin, *Holomorphy types in a Banach space*.

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