

ALGEBRAIC ANALYSIS AND RELATED TOPICS

Editor of the Volume

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PREFACE

Verba volant, scripta manent

The conference “Algebraic Analysis and Related Topics” (AA&RT) was held in Warsaw from September 21 to September 25, 1999 at the Stefan Banach International Center affiliated to the Institute of Mathematics of the Polish Academy of Sciences.

The Organizing Committee consisted of Danuta Przeworska-Rolewicz (Warszawa) and Krystyna Skórnik (Katowice), both from the Institute of Mathematics.

The conference was intended to be a continuation of two conferences: “Different Aspect of Differentiability” (Warsaw, Sept. 13–18, 1993), with proceedings published as volume 340 of *Dissertationes Mathematicae*, 1995, 342 pp., edited by D. Przeworska-Rolewicz; and “Different Aspects of Differentiability II” (Warsaw, Sept. 18–23, 1995), with proceedings published as issue 1-2 of volume 4 of *Integral Transforms and Special Functions*, 1996, vi + 220 pp., edited by the late Professor A. P. Prudnikov († 1999) from Moscow.

Similarly to the DAD I and DAD II conferences, the main topics of AA&RT were: Algebraic Analysis, Operational Calculi, Generalized Functions, related Convergence Problems, Structures with Differentiation, Subdifferentials, their generalizations and applications to Optimization.

33 mathematicians from 10 countries participated in the Conference. They delivered eighteen 45-minute lectures, sixteen 30-minute lectures, and one short communication. (For the lists of participants and lectures see pp. 8–9.)

The Stefan Banach International Center was the organizer and main sponsor of the Conference. The Conference was also sponsored by the Polish Committee for Scientific Research.

The Organizing Committee is greatly indebted to both sponsors and to all people who helped the organizers in their efforts.

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Most of the papers in these Proceedings contain original results presented during the Conference. Some are of survey character. Two papers are of a different type, since they concern the history of Algebraic Analysis. The first one, by John A. Synowiec, is a very comprehensive and penetrating essay on the history of Algebraic Analysis and its

relations to other parts of Analysis. The second one, in a sense complementary to the previous one, concerns mainly the history of the use of the term “Algebraic Analysis”.

All papers have been reviewed individually. We thank the referees who helped us to guarantee the quality of the papers.

* * *

The following papers presented by participants of the conference will be published in *Demonstratio Mathematica*, vol. 33 (2000), no. 3:

- Z. BINDERMAN, On right inverses for functional shifts.
- B. P. DAMYANOV, On Mikusiński product of distributions.
- A. KAMIŃSKI, D. PERIŠIĆ and S. PILIPOVIĆ, Integral transformations on the spaces of tempered ultradistributions.
- A. A. KILBAS, B. BONILLA and J. J. TRUJILLO, Existence and uniqueness theorems for nonlinear fractional differential equations.
- A. A. KILBAS and M. SAIGO, Integral transforms with H-function kernels.
- U. SKÓRNIK, Elements of $D'_{L^q}(\mathbb{R})$ as boundary values of holomorphic functions.

The Organizing Committee is greatly indebted to the Editor-in-Chief of *Demonstratio Mathematica*, Professor Maciej Mączyński and to the Scientific Editor of that volume, Professor Andrzej Fryszkowski, for their assistance.

Danuta Przeworska-Rolewicz

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LIST OF PARTICIPANTS

Belarus: Valentin V. Gorokhovich, Anatoly A. Kilbas, Alexander Kruger

Bulgaria: Blagovest P. Damyanov, Virginia Kiryakova, Svetlana Mincheva

Germany: Hans-Jürgen Glaeske, Diethard Pallaschke, Joseph T. Wloka

Mexico: Louis Verde-Star, Guillermo Arnulfo Vazquez Coutino

Poland: Piotr Antosik, Zbigniew Binderman, Tadeusz Dłotko, Andrzej Kamiński,
Tomasz Kulpa, Grażyna Kwiecińska, Danuta Przeworska-Rolewicz, Stefan Rolewicz,
Krystyna Skórnik, Urszula Skórnik

Russia: Vladimir A. Il'in, Evgeny I. Moiseev

South Korea: Dohan Kim

Spain: Victor Almeida, Juan J. Trujillo

Ukraine: Alexei Y. Karlovich

USA: Josefina Alvarez, Ravi N. Kalia, Piotr Mikusiński, Christopher E. Stuart,
Charles Swartz, John A. Synowiec

LIST OF LECTURES

- V. Almeida (with N. Castro & J. Rodríguez), *An algebraic derivative associated to the operators I^δ and D^δ .*
- J. Alvarez, *The Weyl correspondence as a functional calculus.*
- P. Antosik, *On sequential methods in analysis.*
- Z. Binderman, *Functional shifts.*
- B. P. Damyanov, *On Mikusiński product of distributions.*
- T. Dłotko, *On connections between linear and nonlinear boundary value problems.*
- H.-J. Glaeske, *Convolution structure of (generalized) Hermite transforms.*
- V. V. Gorokhovich, *Geometric structure and classification of infinite-dimensional half-spaces.*
- V. A. Il'in, *The wave equation and the bounding control.*
- R. N. Kalia (with R. K. Raina), *On certain families of analytic functions with negative coefficients involving operators of fractional calculus.*
- A. Kamiński (with D. Perišić & S. Pilipović), *Integral transformations on the spaces of tempered ultradistributions.*
- A. Y. Karlovich, *One-sided invertibility of functional operators in rearrangement-invariant spaces.*
- A. A. Kilbas, *Integral transforms with H -function kernels.*
- D. Kim, *Periodic and almost periodic hyperfunctions.*
- V. Kiryakova, *Borel–Laplace type integral transforms for Gelfond–Leontiev operators with respect to multiple Mittag–Leffler functions.*
- A. Kruger, *Strict (ϵ, δ) -semidifferentials and extremality conditions.*
- T. Kulpa, *Strong approximation of copulas.*
- G. Kwiecińska, *A theorem about Carathéodory's superposition of multivalued maps.*
- P. Mikusiński, *Bohmians on manifolds.*

- S. Mincheva, *Linear operators commuting with integration in the space of continuous functions in a rectangle.*
- E. I. Moiseev, *On the representation of a function in integrals with eigenfunctions of Bessel operator.*
- D. Pallaschke (with A. Agrachev & S. Scholtes), *On Morse theory for piecewise smooth functions.*
- S. Pilipović (with A. Kamiński & D. Perišić), *Hilbert transform and singular integral on the spaces of tempered ultradistributions* (speaker: A. Kamiński).
- D. Przeworska-Rolewicz, *Non-Leibniz algebras with logarithms do not have the trigonometric identity.*
- S. Rolewicz, *Non-Banach algebras and their applications.*
- K. Skórnik, *Mikusiński's operational calculus and its applications.*
- U. Skórnik, *The integral of integrable distributions.*
- C. E. Stuart, *Normed barrelled spaces.*
- J. A. Synowiec, *Some highlights in the development of algebraic analysis.*
- C. Swartz, *A gliding hump property and Banach–Mackey spaces.*
- J. J. Trujillo (with A. Kilbas), *Fractional calculus: differential equations of fractional order.*
- G. A. Vazquez Coutino (with Z. Oziewicz), *Braided Leibniz condition; braided derivation.*
- L. Verde-Star, *Using algebraic concepts and structures in transform theory and fractional calculus.*
- J. T. Wloka, *Reduction of differential equations.*