CONTEMPORARY MATHEMATICS

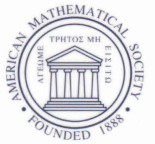
382

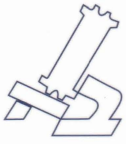
Israel Mathematical Conference Proceedings

Complex Analysis and Dynamical Systems II

A Conference in Honor of
Professor Lawrence Zalcman's Sixtieth Birthday
June 9–12, 2003
Nahariya, Israel

Mark Agranovsky
Lavi Karp
David Shoikhet
Editors





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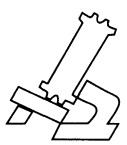

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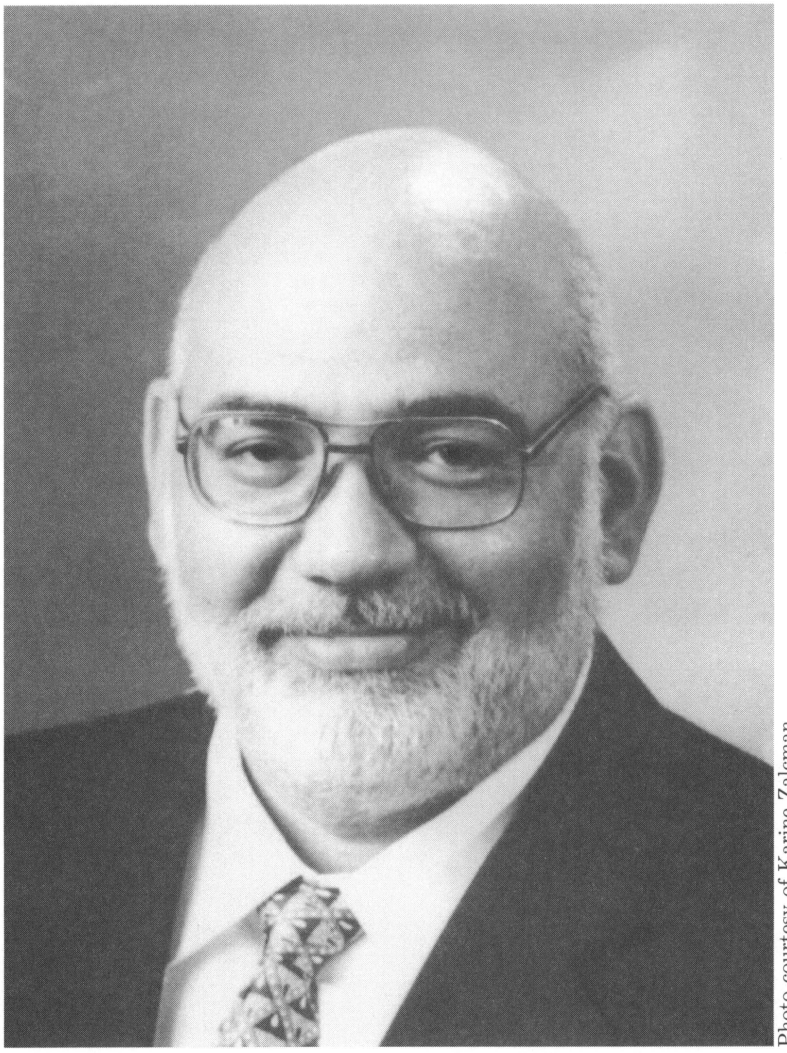

Photo courtesy of Karine Zalcman

Lawrence Zalcman

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Preface

The Second International Conference on Complex Analysis and Dynamical Systems (*CA&DS II*), sponsored by ORT Braude College (Karmiel, Israel), Bar-Ilan University, and the University of Potsdam, took place at the Carlton Hotel in Nahariya, Israel, during June 9–12, 2003. This was the fourth in a series of mathematics conferences organized by ORT Braude over the past several years. Altogether, 78 participants from over a dozen countries attended the Conference, which was held in honor of Professor Lawrence Zalcman's sixtieth birthday.

This volume is the tangible record of *CA&DS II*. Most of the papers collected here have been contributed by participants in the Conference. In some cases, they have chosen to submit manuscripts which depart from the texts of their lectures. There are also contributions from participants who did not speak at the Conference, as well as several papers by friends and admirers of Larry Zalcman who were unable to attend. All submissions have been carefully refereed. Taken together, the papers presented here cover an extraordinarily broad range of subjects within complex analysis and bordering areas and testify to the continuing vitality of the interplay between classical and modern analysis.

We acknowledge with thanks the support provided for the Conference by the Gelbart Research Institute for Mathematical Sciences and the Emmy Noether Research Institute for Mathematics of Bar-Ilan University and the Sacta-Rashi Foundation and for the preparation of this volume by the Gelbart and Noether Institutes. Special thanks to the technical editor, Miriam Beller, for her heroic efforts to produce this volume in a timely fashion and to Jeremy Schiff for superb technical assistance when it mattered most.

The Editors

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Conference Program

Monday, June 9

09:00 - 09:30 Refreshments and Registration

09:30 - 10:00 Opening Ceremony

Plenary Morning Session, Gallery Hall

10:10 - 11:00 W. K. Hayman
Zeros of solutions to the functional equations $\sum_{j=1}^{m} a_j(z) f(c^j z) = Q(z)$

11:10 - 12:00 W. Bergweiler
Normal families and exceptional values of derivatives

12:20 - 12:50 A. Hinkkanen
Growth estimates for certain analytic functions

12:55 - 13:25 C. H. FitzGerald
The image of the sum of slit mappings

Afternoon Session, Gallery Hall

14:45 - 15:15 J. M. Anderson
The dyadic parametrization of curves

15:20 - 15:50 A. Gol'dberg
On a connection between the number of poles of a meromorphic function and the number of zeros of its derivatives

15:55 - 16:25 X. C. Pang
Quasinormal families of meromorphic functions omitting a holomorphic function

16:40 - 17:10 J. Globevnik
Analyticity on circles

17:15 - 17:45 M. Sodin
Harmonic functions and sign changes

Tuesday, June 10

Plenary Morning Session, Gallery Hall

09:00 - 09:50 V. Palamodov
Darboux equation and reconstruction from spherical means

10:00 - 10:50 L. Zalcman
A glance backward, a long look ahead

Morning Session 1, Gallery Hall

11:10 - 11:40 L. Flatto
Billiards in an ellipse

11:45 - 12:15 D.-C. Chang
Sub-Riemannian geometry on a step 2k sub-Riemannian manifold

12:20 - 12:50 E. Grinberg
Mean value theorems for PDE and fitting convex bodies

Morning Session 2, La Caprice Hall

11:10 - 11:40 B.-W. Schulze
Ellipticity on spaces with corners

11:45 - 12:15 J. Schiff
A modification of the modified equations method

12:20 - 12:50 F. Klebaner
The most visited region of the Lotka-Volterra system

Afternoon Session 1, Gallery Hall

14:30 - 15:00 J. Gevirtz
Variational methods for first-order univalence criteria

15:05 - 15:35 V. Goryainov
Evolution families of analytic functions

15:40 - 16:10 A. Lecko
On univalent functions starlike with respect to a boundary point

16:30 - 17:00 S. Krushkal
The Schwarzian derivative and complex Finsler metrics

17:05 - 17:35 H. Silverman
Inverses under convolution

Afternoon Session 2, La Caprice Hall

14:30 - 15:00 V. Katsnelson
Rational solutions of the Schlesinger system

15:05 - 15:35 H. Dym
Riccati equations and bitangential interpolation problems

15:40 - 16:10 Y. Yomdin
Center-focus problem, moments, and compositions: some new developments

16:30 - 17:00 E. Liflyand
Hausdorff operators on the real Hardy space

17:05 - 17:35 V. Rabinovich
Essential spectrum of Schrödinger operators

Wednesday, June 11

Plenary Morning Session, Gallery Hall

09:00 - 09:50 J. Siciak
Pluripolar hulls and pseudocontinuation

09:55 - 10:45 A. Olevskii
Representation of functions by power series

Morning Session 1, Gallery Hall

11:00 - 11:30 D. Aharonov
Minimal area problems and quadrature domains

11:35 - 12:05 A. Vasil'ev
Flows on homogeneous spaces and a parametric method for conformal maps with quasiconformal extension

12:20 - 12:50 V. Azarin
Some characteristics of asymptotic behavior of subharmonic and entire functions and their independence

12:55 - 13:25 A. Golberg
Homeomorphisms with mean integral dilatations

Morning Session 2, La Caprice Hall

11:00 - 11:30 S. Vodopyanov
Geometry of Carnot-Carathéodory spaces and differentiability of mappings

11:35 - 12:05 M. Cwikel
Moduli of continuity and K-divisibility of K-functionals

12:20 - 12:50 P. Yuditskii
Szegö, Killip-Simon and others

12:55 - 13:25 M. Chuaqui
Simple curves in $\mathbb{R}^n$ and Ahlfors' Schwarzian derivative

Thursday, June 12

Plenary Morning Session, Gallery Hall

09:00 - 09:50 N. Tarkhanov
Holomorphic Lefschetz formula

Morning Session 1, Gallery Hall

10:10 - 10:40 H. M. Farkas
The solutions of some Diophantine equations

11:10 - 11:40 B. Schreiber
Representation of isotropic harmonizable covariances

11:45 - 12:15 G. Levin
A straightening theorem for a class of meromorphic functions

12:20 - 12:50 E. Yakubov
The Beltrami equation and finite mean oscillation

Morning Session 2, La Caprice Hall

10:10 - 10:40 L. Maergoiz
Optimal estimate for extrapolation from a finite set in the Wiener class

11:10 - 11:40 S. Myslivets
Holomorphic Lefschetz formula for manifolds with boundary

11:45 - 12:15 D. Bshouty
Planar harmonic mappings

12:20 - 12:50 I. Markina
Extremal widths on the Heisenberg group

Afternoon Session 1, Gallery Hall

14:30 - 15:00 A. Kytmanov
Removable singularities of CR functions on singular hypersurfaces

15:05 - 15:35 T. Ishankulov
On the possibility of continuation of functions from a part of the boundary of a domain to the whole domain as solutions of the Moisil-Theodoresco system of equations

Afternoon Session 2, La Caprice Hall

14:30 - 15:00 E. Ournycheva
Radon transforms on matrix spaces

15:05 - 15:35 J. Zemánek
Cesàro means and resolvents of linear operators

Concluding Session, Gallery Hall

16:00 - 16:30 L. Aizenberg
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This volume is a collection of papers reflecting the conference held in Nahariya, Israel in honor of Professor Lawrence Zalcman's sixtieth birthday. The papers, many written by leading authorities, range widely over classical complex analysis of one and several variables, differential equations, and integral geometry. To mention just some of those areas addressed within the theory of functions of one complex variable, there are studies on complex dynamics, elliptic functions, Kleinian groups, quasiconformal mappings, Tauberian theorems, univalent functions, and value distribution theory.

Taken together, the papers in this volume provide a snapshot of activity in complex analysis at the beginning of the twenty-first century and testify to the continuing vitality of the interplay between classical and modern analysis.

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