ANNALS OF THE NEW YORK ACADEMY OF SCIENCES
Volume 704

PAPERS ON GENERAL TOPOLOGY AND APPLICATIONS

SEVENTH SUMMER CONFERENCE AT THE UNIVERSITY OF WISCONSIN

Edited by Sónia Andima, Ralph Kopperman, Prabudh Ram Misra, Mary Ellen Rudin, and Aaron R. Todd

The New York Academy of Sciences
New York, New York
1993

ANNALS OF THE NEW YORK ACADEMY OF SCIENCES

Volume 704
December 28, 1993

PAPERS ON GENERAL TOPOLOGY AND APPLICATIONS

SEVENTH SUMMER CONFERENCE AT THE UNIVERSITY OF WISCONSIN[a]

Editors
SUSAN ANDIMA, RALPH KOPPERMAN, PRABUDH RAM MISRA,
MARY ELLEN RUDIN, and AARON R. TODD

Conference Organizers
R. KOPPERMAN, A. MILLER, and F. D. TALL

Advisory Committee
S. ANDIMA, W. W. COMFORT, M. HENRIKSEN, G. ITZKOWITZ, R. KOPPERMAN,
R. LEVY, A. MILLER, P. MISRA, L. NARICI, R. M. SHORTT, A. TODD,
J. E. VAUGHAN, and S. W. WILLIAMS

CONTENTS

Preface. *By* SUSAN ANDIMA, RALPH KOPPERMAN, PRABUDH RAM MISRA, MARY ELLEN RUDIN, and AARON R. TODD ix

Reminiscences of Boris Shapirovskii

Remembrance of Boris Shapirovskii: About My Husband. *By* NINA FRANK xiii
Remembering Boris. *By* FRANKLIN D. TALL xvi
My Week with Boris. *By* RALPH KOPPERMAN xvii
A Decision for Boris and Some Consequences. *By* PETER NYIKOS xix
Memories of Boris Shapirovskii. *By* MARY ELLEN RUDIN xxi

Part 1. Conference Papers

Some Cardinal Inequalities in Lindelöf Spaces. *By* O. T. ALAS 1
H-Enrichments and Their Homeomorphism Groups II. *By* PAUL BANKSTON ... 6

[a]The papers in this volume were presented at the 1991 Summer Conference on General Topology and Applications in Honor of Mary Ellen Rudin and Her Work, held in Madison, Wisconsin, from June 26 to 29, 1991.

A Surprising Similarity Between a Closed n-cell and $\beta\mathbb{R}^n$. *By* DAVID P. BELLAMY and BEVERLY DIAMOND 19

Local Compactness of Hyperspaces. *By* BRUCE S. BURDICK 28

Liftings for Noncomplete Probability Spaces. *By* MAXIM R. BURKE 34

Closure Operators and Polarities. *By* G. CASTELLINI, J. KOSLOWSKI, and G. E. STRECKER 38

On Topologies Generated by Filters of Relations. *By* P. J. Collins, P. M. Gartside, R. D. Kopperman, H. P. A. Künzi, and P. J. MOODY 53

Topological Partition Relations of the Form $\omega^* \to (Y)^1_2$. *By* W. W. COMFORT, AKIO KATO, and SAHARON SHELAH 70

Measures and Ideals of $C^*(X)$. *By* JEFF CONNOR and MARY ANNE SWARDSON 80

Accessible and Biaccessible Points in Contrasequential Spaces. *By* ALAN DOW and JERRY E. VAUGHAN 92

A Primer on Galois Connections. *By* M. ERNÉ, J. KOSLOWSKI, A. MELTON, and G. E. STRECKER 103

The Cardinal Number **d** and Convergent Sequences in Q. *By* STEPHEN H. FAST 126

Regularity and Sequential Convergence Spaces. *By* ROMAN FRIČ and D. C. KENT 129

Another Decomposition of Continuity. *By* M. GANSTER and I. L. REILLY 135

Homeomorphisms of 1-Manifolds and ω-Bounded 2-Manifolds. *By* DAVID GAULD 142

Sequentially Compact Cancellative Topological Semigroups: Some Progress on the Wallace Problem. *By* DOUGLASS L. GRANT 150

The Topological–Algebraic System $(\beta\mathbb{N}, +, \cdot)$. *By* NEIL HINDMAN 155

The Structure of Locally Compact Connected Groups and Metrizability. *By* GERALD ITZKOWITZ and TA SUN WU 164

Primes in Preordered Sets: A Question of Henriksen and Kopperman. *By* D. JOHNSON and J. KIST 175

How Indecomposable Continua Arise in Dynamical Systems. *By* JUDY KENNEDY 180

Convergence Space Extensions. *By* D. C. KENT and E. E. REED 202

Spaces with Weaker Minimal T_0 and Minimal T_D Topologies. *By* T. YUNG KONG and RICHARD G. WILSON 214

Characterizations of Cohen Algebras. *By* SABINE KOPPELBERG 222

Products of ACRIN Spaces. *By* TIMOTHY J. LABERGE 238

Green's Equivalences and Related Concepts for Semigroups of Continuous Selfmaps. *By* K. D. MAGILL, JR. 246

A Regular Countable Chain Condition Space without Compact-Caliber (ω_1, ω). *By* D. W. MCINTYRE 269

Comparison of Topologies on Hyperspaces. *By* S. A. NAIMPALLY 273

Perfect κ-Normality of Product Spaces. *By* HARUTO OHTA, MASAMI SAKAI, and KEN-ICHI TAMANO 279

Extensions of Discrete Spaces. *By* JACK R. PORTER 290
Autohomeomorphisms of Thin-Tall Locally Compact Scattered Spaces in ZFC. *By* JUDITH ROITMAN 296
Lower Density Topologies. *By* D. A. ROSE, D. JANKOVIĆ, and T. R. HAMLETT 309
The Equivalence of Sequential Compactness and Pseudoradialness in the Class of Compact T_2-Spaces, Assuming CH. *By* BORIS SHAPIROVSKIĬ 322
Explicit Metrization. *By* S. D. SHORE and LAURIE J. SAWYER 328
Infinitesimal R-Trees Associated with Lifts of Quadratic Differentials without Connections in the Unit Disk. *By* LEV SLUTSKIN 337
The Homeomorphism Extension Theorem for $\beta\omega/\omega$. *By* ERIC K. VAN DOUWEN and JAN VAN MILL 345

Part 2. Open Problems

Topological Equivalence of Function Spaces. *By* JAN BAARS 351
A Problem in the Open Disc. *By* GEORGE BALOGLOU and PHIL TRACY 353
A Note on the Semigroup $(\beta\mathbb{N}, +)$. *By* DONA STRAUSS 355
Consistently, Must Perfect Pseudocompact Spaces Be Separable? *By* I. J. TREE 358

Subject Index 359
Index of Contributors 367

Financial assistance was received from:

- BARUCH COLLEGE—CUNY
- THE CITY COLLEGE—CUNY
- THE COLLEGE OF STATEN ISLAND—CUNY
- LONG ISLAND UNIVERSITY—C.W. POST CAMPUS
- THE NEW YORK ACADEMY OF SCIENCES (MATHEMATICS SECTION)
- ST. JOHN'S UNIVERSITY
- UNIVERSITY OF WISCONSIN
- WESLEYAN UNIVERSITY

The New York Academy of Sciences believes it has a responsibility to provide an open forum for discussion of scientific questions. The positions taken by the participants in the reported conferences are their own and not necessarily those of the Academy. The Academy has no intent to influence legislation by providing such forums.