Homotopy Theory and Its Applications

A Conference on Algebraic Topology in Honor of Samuel Gitler
August 9–13, 1993
Cocoyoc, Mexico

Alejandro Adem
R. James Milgram
Douglas C. Ravenel
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(Continued in the back of this publication)
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Contents

Preface vii

Discrete groups, Grothendieck rings and families of finite subgroups
ALEJANDRO ADEM 1

Once in class with Sam
ANONYMOUS 25

Stably fibre homotopy invariant classes in complex-oriented theories
L. ASTEY 29

Finite simple groups and Dickson invariants
D. J. BENSON AND C. W. WILKERSON 39

The Atiyah-Jones Conjecture
CHARLES P. BOYER 51

On combinatorial group theory in homotopy
F. R. COHEN 57

On the homotopy theory associated to certain finite groups of 2-rank two
F. R. COHEN, J. R. HARPER, AND R. LEVI 65

Equivalences of some $v_1$-telescopes
DONALD M. DAVIS 81

The stable homotopy type of rank two $p$-groups
JILL DIETZ AND STEWART PRIDDY 93

Some homotopy of the cobordism spectrum $MO(8)$
MARK MAHOWALD AND VASSILY GORBOUNOV 105

Numerical invariants of fibrewise homotopy type
I. M. JAMES 121

Geometric dimension of bundles on real projective spaces
KEE YUEN LAM AND DUANE RANDALL 137

Classifying spaces and their maps
JOHN R. MARTINO 161
The Atiyah-Jones conjecture for ruled surfaces and the geometry of instanton moduli spaces
   R. James Milgram 199

Linear spaces of real matrices of given rank
   Elmer G. Rees 219

A note on the Adams e-invariant
   Jose Seade 231
Preface

In August 1993 a meeting was held in Cocoyoc, Mexico on the subject of Homotopy Theory and its Applications. There were many foreign participants in addition to a number of Mexican topologists. The main focus of the meeting was to highlight the current development of methods in homotopy theory, and how they can be applied to interesting problems involving classifying spaces, moduli spaces, representation theory, etc. The 16 papers in this volume testify to the diversity and activity in this area of mathematics.

This conference was partly held to celebrate Samuel Gitler's sixtieth birthday. Gitler studied mathematics and engineering at the National University of Mexico (UNAM) before doing his graduate studies at Princeton University under Norman Steenrod, obtaining his Ph. D. in 1960. Soon after he was invited by José Adem to join the faculty at the newly created Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional. Adem and Gitler created a unique atmosphere of high level research in mathematics at the Centro, and many mathematicians remember Sam's hospitality and mathematical collaboration with great fondness. Gitler's research has been highly regarded for many years, and it involves many aspects of topology, especially homotopy theory. Perhaps his best known work was the description that he and Ed Brown gave of the so-called Brown–Gitler spectra, which have played an important role in algebraic topology over the past two decades. Gitler has had many collaborators over the years, including Adem, Astey, Antoniano, Bendersky, Berrick, Boyer, Brown, Davis, Feder, Iberkleid, Handel, James, Lam, Mahowald, Micha, Milgram, Pastor, Stasheff, Ucci, Verjovsky and Zvengrovsky.

Sam Gitler has contributed significantly to the development of mathematics in Mexico. He served as editor of the Boletín de la Sociedad Matemática Mexicana and ran many seminars which helped to educate young topologists in Mexico. In recognition of his contributions to mathematics in Mexico, Gitler was awarded the National Science Prize in 1976 by the Mexican government, and in 1986 he was elected a member of the prestigious Colegio Nacional.

Since 1987 Sam Gitler has been at the University of Rochester, where he helped to assemble one of the leading research groups in homotopy theory. We are sure that Sam has many productive years ahead of him, and it is a great pleasure for us to dedicate this volume to him.
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Alejandro Adem
Mathematics Department
University of Wisconsin-Madison

Marcelo Aguilar
Instituto de Matemáticas
UNAM
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(Continued from the front of this publication)

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This book is the result of a conference held to examine developments in homotopy theory in honor of Samuel Gitler in August 1993 (Cocoyoc, Mexico). It includes several research papers and three expository papers on various topics in homotopy theory.

The research papers discuss the following:
- application of homotopy theory to group theory
- fiber bundle theory
- homotopy theory

The expository papers consider the following topics:
- the Atiyah-Jones conjecture (by C. Boyer)
- classifying spaces of finite groups (by J. Martino)
- instanton moduli spaces (by R. J. Milgram)

Homotopy Theory and Its Applications offers a distinctive account of how homotopy-theoretic methods can be applied to a variety of interesting problems.

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