

CONTEMPORARY MATHEMATICS

560

Topology and Geometry in Dimension Three Triangulations, Invariants, and Geometric Structures

Conference in Honor of William Jaco's 70th Birthday
June 4–6, 2010

Oklahoma State University, Stillwater, Oklahoma

Weiping Li, Loretta Bartolini, Jesse Johnson,
Feng Luo, Robert Myers, J. Hyam Rubinstein
Editors



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American Mathematical Society
Providence, Rhode Island

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2010 *Mathematics Subject Classification*. Primary 57Mxx, 57N10, 46E25, 20C20, 20F65, 20J99, 14E20.

Library of Congress Cataloging-in-Publication Data

Topology and geometry in dimension three : triangulations, invariants, and geometric structures : conference in honor of William Jaco's 70th birthday, June 4–6, 2010, Oklahoma State University, Stillwater, OK / Weiping Li . . . [et al.], editors.

p. cm. — (Contemporary mathematics ; v. 560)

Includes bibliographical references.

ISBN 978-0-8218-5295-8 (alk. paper)

1. Three-manifolds (Topology)—Congresses. 2. Topological manifolds—Congresses. I. Jaco, William H., 1940– II. Li, Weiping, 1963–

QA613.2.T67 2011

514'.34—dc23

2011033120

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Preface

For many young topologists, their introduction to three-manifolds is marked by the blue volume *Lectures on Three-Manifold Topology*. This CBMS publication, which captures a series of lectures by William ‘Bus’ Jaco in the Fall of 1977, has become a classic reference for students and researchers. Progressing into the field of three-manifolds, one discovers the JSJ-decomposition; this result of Bus Jaco and Peter Shalen (discovered independently by Klaus Johannson) on the theory of characteristic varieties underlies the geometrization conjecture of Thurston. Bus’ many research achievements also include crucial contributions to the development of normal surface theory, triangulations and algorithms in 3-dimensional geometry and topology.

Bus grew up in Grafton, West Virginia, planning at Fairmont College to become a school teacher. However, his outstanding talents in mathematics and drive for learning led to graduate school. A student of R H Bing and D. R. McMillan, Bus received his Ph.D. from the University of Wisconsin in 1968. Graduation was followed by a postdoctoral position at the University of Michigan, before taking a permanent position at Rice University, where he achieved rapid promotion to Full Professor. A highly active scholar, Bus held a variety of visiting positions thereafter, including terms at the Institute for Advanced Study, Columbia University, University of Melbourne, Mathematical Sciences Research Institute, American Institute of Mathematics and University of Michigan.

Moving to Oklahoma State University in 1982, as Head of the Department of Mathematics, marked the start of a highly influential term. Bus’ far-sighted leadership and tireless work ethic saw a boom in research and scholarly activities in the Department, accompanied by his own ongoing research achievements. His strong leadership and commitment to the profession were to rise to national prominence, with a term as Executive Director of the American Mathematical Society from 1988 to 1995. This outstanding contribution was followed with honors both scientific and professional: elected as Fellow of the American Association for Advancement of Science, Regents Professor at Oklahoma State University and Trustee of the American Mathematical Society. Along with his accomplishments in mathematics, Bus’ contributions to the Department, University, Profession and American Sciences are both remarkable and continuing.

The Jacofest conference, held in Stillwater, Oklahoma, June 4-6 2010, brought together over 80 topologists and geometers from around the globe. There were 15 plenary talks attended by a wide range of participants: from long-standing collaborators to the latest generation of graduate students. This group produced an atmosphere rich in ideas and energy, most fitting to celebrate a career with such

qualities in abundance. We hope this volume captures the mathematical endeavours and warm recognition of Bus at the Conference.

We would like to acknowledge the support received from the National Science Foundation under Grant No. 0900229 and Grant No. 1005383, the American Institute of Mathematics, the College of Arts and Sciences at Oklahoma State University and the Department of Mathematics at Oklahoma State University. We thank them for their generous financial and administrative support. We also thank D. Alspach, B. Conrey, M. Denzler, S. Downing, M. Gordon and A. M. McFarlin for their help at various stages of the Conference, and C. M. Thivierge for her assistance in preparing this volume.

The Editors
July 2011

Jacofest Talks

- | | |
|---|--|
| Ian Agol <i>University of California at Berkeley</i>
“Ideal triangulations of bundles” | Joseph Maher <i>CUNY – College of Staten Island</i>
“Random Heegaard splittings” |
| Francis Bonahon <i>University of Southern California</i>
“Kauffman brackets, character varieties, and triangulations of surfaces” | Jessica Purcell <i>Brigham Young University</i>
“State surfaces, polyhedra, and guts of knots” |
| Danny Calegari <i>California Institute of Technology</i>
“Faces of the scl norm ball” | J. Hyam Rubinstein <i>University of Melbourne</i>
“Normal 3-manifolds in triangulated 4-manifolds” |
| Nathan Dunfield <i>University of Illinois at Urbana-Champaign</i>
“Twisted Alexander polynomials, hyperbolic geometry, and knot genus” | Saul Schleimer <i>University of Warwick</i>
“On train track splitting sequences” |
| David Futer <i>Temple University</i>
“Angled triangulations and Dehn surgery” | Peter Shalen <i>University of Illinois at Chicago</i>
“Generic Margulis numbers” |
| Stavros Garoufalidis <i>Georgia Institute of Technology</i>
“The Slope Conjecture” | Stephan Tillmann <i>University of Queensland</i>
“Straightening, spinning and the recognition of closed hyperbolic 3-manifolds” |
| Cameron Gordon <i>University of Texas at Austin</i>
“Seifert fibered Dehn filling” | |
| Elisenda Grigsby <i>Boston College</i>
“On sutured Khovanov homology and sutured Floer homology” | |
| Feng Luo <i>Rutgers University</i>
“Minimally triangulated 3-manifolds with special normal surfaces” | |

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This volume contains the proceedings of a conference held from June 4–6, 2010, at Oklahoma State University, in honor of William (Bus) Jaco's 70th birthday. His contributions to research in low dimensional geometry and topology and to the American mathematical community, especially through his work for the American Mathematical Society, were recognized during the conference.

The focus of the conference was on triangulations and geometric structures for three-dimensional manifolds. The papers in this volume present significant new results on these topics, as well as in geometric group theory.

ISBN 978-0-8218-5295-8



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