Council for African American Researchers in the Mathematical Sciences: Volume III

CAARMS
Fifth Conference for African American Researchers in the Mathematical Sciences
June 22–25, 1999
University of Michigan, Ann Arbor, Michigan

Alfred G. Noël
Earl Barnes
Sonya A. F. Stephens
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CAARMS
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This volume contains research and expository papers presented primarily at the CAARMS5 (5th Conference for African American Researchers in the Mathematical Sciences) meeting held June 22–25, 1999 at the University of Michigan in Ann Arbor, Michigan and supplemented by presentations made at the CAARMS3 meeting held June 17–20, 1997 at Morgan State University in Baltimore, Maryland. Financial support was provided by the National Security Agency, the University of Michigan, and Morgan State University.

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Preface

The Council for African American Researchers in the Mathematical Sciences (CAARMS) is a group dedicated to organizing an annual conference that showcases the current research primarily, but not exclusively, of African Americans in the mathematical sciences, which includes mathematics, operations research, statistics, and computer science. Held annually since 1995, the Conference for African American Researchers in the Mathematical Sciences (also called CAARMS) has had significant numbers of African American researchers presenting their work in hour long technical presentations and African American graduate students presenting their current work in an organized poster session. These events create a forum for mentoring and networking, where attendees can meet an audience of African American researchers and graduate students interested in such fields. The members of the council work on other issues such as strategies for increasing the number of doctoral recipients from underrepresented minority groups.

Although the current proceedings are considered to be “Volume III” of this series, Volumes I and II were published under different titles. Volume I is called “African Americans in Mathematics” and contains proceedings from the second CAARMS meeting, called CAARMS2, held June 25–28, 1996 at the Center for Discrete Mathematics and Computer Science (DIMACS) in Piscataway, New Jersey. It is also Volume 34 of the Series in Discrete Mathematics and Theoretical Computer Science. Volume II is called “African Americans in Mathematics II” and contains the proceedings from the CAARMS4 meeting, held June 16–19, 1998 at Rice University, in Houston, Texas. It is Volume 252 of the Contemporary Mathematics Series of the American Mathematical Society. Henceforth, the current title of Volume III, “Council for African American Researchers in the Mathematical Sciences” will be the permanent title for the series. This volume includes research and expository papers presented at both the CAARMS3 meeting held June 17–20, 1997 at Morgan State University in Baltimore, Maryland and at the CAARMS5 meeting held June 22–25 1999 at the University of Michigan in Ann Arbor, Michigan. The work covers a wide range of mathematics and every reader will find something of interest. Some papers are comprehensive surveys of research topics for which no textbook exists. Other papers develop mathematics to obtain a deeper theoretical insight into mathematics or to solve problems in manufacturing and oceanography. Finally, some papers discuss new ways to view the totality of mathematics and move beyond the “pure” versus “applied” paradigm. The general style is rather expository which should help the reader.

Those meriting special thanks include the organizers of the CAARMS5 meeting: William Massey from Bell Laboratories of Lucent Technologies, Leon Woodson from Morgan State University, and our University of Michigan hosts John Birge,
currently the Dean of Engineering at Northwestern University, and Robert Megginson of the University of Michigan. William Massey is one of the co-founders of CAARMS and has been one of the main organizers of every CAARMS meeting. John Birge and Robert Megginson respectively represent the joint participation of the University of Michigan's Operations and Industrial Engineering department and the Mathematics department with the CAARMS5 meeting. We also thank the National Security Agency, the University of Michigan, and Morgan State University for their financial support.

Finally we express our deep gratitude to all the anonymous referees and to Christine Thivierge of the American Mathematical Society for their advice and comments.

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December 2000
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This volume presents research and expository papers presented at the third and fifth meetings of the Council for African American Researchers in the Mathematical Sciences (CAARMS). The CAARMS is a group dedicated to organizing an annual conference that showcases the current research primarily, but not exclusively, of African Americans in the mathematical sciences, including mathematics, operations research, statistics, and computer science. Held annually since 1995, significant numbers of researchers have presented their current work in hour-long technical presentations, and graduate students have presented their work in organized poster sessions. The events create an ideal forum for mentoring and networking where attendees can meet researchers and graduate students interested in the same fields. For volumes based on previous CAARMS proceedings, see African Americans in Mathematics II (Volume 252 in the AMS series, Contemporary Mathematics), and African Americans in Mathematics (Volume 34 in the AMS series, DIMACS).