CONTEMPORARY MATHEMATICS

687

Problems and Recent Methods in Operator Theory

Workshop on
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October 15–16, 2015

AMS Special Session on
Advances in Operator Theory and Applications
October 17–18, 2015

The University of Memphis, Memphis, TN

Fernanda Botelho
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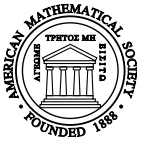

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This volume is dedicated to the Memory of Professor James E. Jamison.

Professor James E. Jamison was Chair of the Department of Mathematical Sciences at the University of Memphis 2000-2012 and a faculty member 1970-2014. He had a highly active and productive professional life, both as dedicated teacher, mentor and researcher in Operator Theory and Functional Analysis. His enthusiasm as a teacher of mathematics inspired generations of young scholars to pursue mathematics on their own. As Chair he led the department to national and international visibility. He continued with his research and teaching while maintaining a regular professional schedule up to the very last days of his life.

Jamison's passion for mathematics will stay forever with those who knew him.

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Preface

Operator theory is at the root of several branches of mathematics and offers a broad range of challenging and interesting research problems. It provides powerful tools for the development of other areas of science including quantum theory, physics and mechanics. Unitary operators and isometries have applications in solid-state physics. Hermitian operators play an integral role in quantum mechanics very much due to their "nice" spectral properties. This field is very broad and extremely fertile with fascinating and promising research opportunities for experts and prospective researchers. Researchers, in particular early career mathematicians, often feel overwhelmed with so many possible and interesting avenues to explore, each requiring mastery of many techniques and mathematical subtleties. This volume include recent results and advances in the field, surveys of classical problems and also articles that bridge operator theory with other areas of science.

This volume consists of twenty one papers by participants at the "Problems and Recent Methods in Operator Theory Workshop" (October 15-16, 2015) and at the AMS Southeastern Sectional Meeting (#1113) Special Session "Advances in Operator Theory and Applications-in Memory of James Jamison" (October 15-19, 2015), both held at the University of Memphis. This volume includes a few expository and survey articles on state of the art techniques geared towards early career mathematicians to facilitate a deep appreciation of more technical research in the area. Highlighted topics include spectral, structural and geometric properties of special types of operators on Banach spaces, with emphasis on isometries, weighted composition operators, and projections on function spaces.

This conference was held in memory of James E. Jamison who passed away in November 2014. Jamison was a faculty member of the department of mathematical sciences at the University of Memphis since 1970. He had a very active and productive professional life both as a dedicated teacher and mentor of young scholars and also as a recognized and respected researcher in operator theory and functional analysis. Jamison endured a very difficult and heroic fight against cancer that lasted over fifteen years. During all these years, he continued to work on his research, teaching and advising, all while maintaining a regular professional schedule up to the very last days of his life.

We are grateful to the National Science Foundation Foundation (NSF Award DMS-1546799), Pearson Education, and the University of Memphis Dean of Arts and Sciences and the Office of the Provost for sponsoring and financial support. Special thanks to all participants and contributors to this volume. Thanks are due to many colleagues for their precious help in the refereeing process. We are

also most thankful to the American Mathematical Society for making these papers widely available by publishing this volume.

Memphis, June 2016

Fernanda Botelho, Raena King, and T.S.S.R.K. Rao

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Methods in Operator Theory • Botelho et al., Editors

This volume contains the proceedings of the Workshop on Problems and Recent Methods in Operator Theory, held at the University of Memphis, Memphis, TN, from October 15–16, 2015 and the AMS Special Session on Advances in Operator Theory and Applications, in Memory of James Jamison, held at the University of Memphis, Memphis, TN, from October 17–18, 2015.

Operator theory is at the root of several branches of mathematics and offers a broad range of challenging and interesting research problems. It also provides powerful tools for the development of other areas of science including quantum theory, physics and mechanics. Isometries have applications in solid-state physics. Hermitian operators play an integral role in quantum mechanics very much due to their "nice" spectral properties. These powerful connections demonstrate the impact of operator theory in various branches of science.

The articles in this volume address recent problems and research advances in operator theory. Highlighted topics include spectral, structural and geometric properties of special types of operators on Banach spaces, with emphasis on isometries, weighted composition operators, multi-circular projections on function spaces, as well as vector valued function spaces and spaces of analytic functions.

This volume gives a succinct overview of state-of-the-art techniques from operator theory as well as applications to classical problems and long-standing open questions.

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