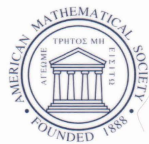# Recent Progress in Arithmetic and Algebraic Geometry

Barrett Lecture Series Conference
April 25–27, 2002
University of Tennessee
Knoxville, Tennessee

Yasuyuki Kachi
S. B. Mulay
Pavlos Tzermias
Editors

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This volume consists of the thirty-first annual John H. Barrett Memorial Lecture Series, held April 25–27, 2002 at the University of Tennessee, Knoxville, with financial support from the University of Tennessee, the Science Alliance, and the Haines-Morris Foundation.

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Preface

This volume consists of the proceedings of the thirty-first annual John H. Barrett Memorial Lecture Series, held April 25-27, 2002 at The University of Tennessee, Knoxville. The lecture series was on the twin research areas : Algebraic Geometry / Arithmetic Algebraic Geometry. There were three one-hour plenary lectures by two Principal Lecturers. For the Algebraic Geometry part, Yujiro Kawamata of University of Tokyo was the Principal Lecturer. For the Arithmetic Algebraic Geometry part, Yasutaka Ihara of the Kyoto University Research Institute for Mathematical Sciences was the Principal Lecturer. In addition to the six plenary lectures, there were twelve forty-minute talks delivered by the participating guest lecturers coming from various other universities.

We would like to thank the Principal Lecturers for gracing the conference with their inspiring plenary lectures and also like to thank all the participants for making the lecture series a stimulating event. We would like to thank all the contributors to this volume. Our sincere thanks are due to The University of Tennessee, The Science Alliance and the Haines-Morris Foundation for their financial support of the lecture series. We would like to thank John B. Conway, the program director of NSF, and Robert J. Daverman, the Secretary of AMS, for their consistent support.

We would like to thank the AMS Acquisitions, the Managing Editor Dennis DeTurck for the approval, the Associate Publisher Sergei Gelfand for helping the timely publication, and the Editorial Assistant Christine M. Thivierge for the exclusive encouragement, assistance and cooperation, with much patience.

Yasuyuki Kachi

S. B. Mulay

Pavlos Tzermias

John H. Barrett (1922–1969)

John H. Barrett was born in 1922 and grew up on a farm in Kansas. He received his A. B. in 1944 from Fort Hays Kansas State College. He did his graduate work at the University of Texas and was an instructor there from 1946–1951. His thesis was on differential equations of non-integer order and under the direction of H. J. Ettlinger. He was an assistant professor at Delaware from 1951–1956, an associate professor at Utah from 1956–1961, and professor at Tennessee from 1961–1969. He also spent the year 1955–1956 visiting Yale and the year 1959–1960 visiting the Research Center at Wisconsin. In January, 1969, he died from complications following a kidney transplant. His wife, Lida, was also a faculty member at Tennessee, where she was head from 1973 to 1980. They had three children.

John was well known for his work on oscillation and disconjugacy theory of linear differential equations as well as the study of boundary value problems. One of his best known contributions was the extension of the classical Prüfer transformation for 2nd order scalar differential equations to systems of differential equations. He had several Ph. D. students. In a time when a common teaching load was three courses, he regularly ran a seminar on differential equations in addition. Typically it would meet very early on a Tuesday or Thursday morning with John as the most frequent lecturer. Through his efforts and influence, an active group in differential equations evolved at the University of Tennessee. This tradition has continued since that time. The Barrett Lecture series is a fitting reminder of his many contributions to the university and community.

(A tribute delivered by Don Hinton, March 22, 1995)

List of Invited Speakers

Yasutaka Ihara (Plenary Speaker)
Kyoto University

Yujiro Kawamata (Plenary Speaker)
University of Tokyo

Steven Dale Cutkosky
University of Missouri

Jordan Ellenberg
Princeton University

Farshid Hajir
California State University at San
Marcos

Minhyong Kim
University of Arizona

Sándor J. Kovács
University of Washington

Tie Luo
University of Texas at Arlington

Kenji Matsuki
Purdue University

William McCallum
University of Arizona

Keiji Oguiso
University of Tokyo

Rachel J. Pries
Columbia University

Romyar Sharifi
Harvard University

Qi Zhang
University of Missouri

This proceedings volume resulted from the John H. Barrett Memorial Lecture Series held at the University of Tennessee (Knoxville). The articles reflect recent developments in algebraic geometry. It is suitable for graduate students and researchers interested in algebra and algebraic geometry.

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