

Memorial Resolution of the Faculty of the University of Wisconsin-Madison

On the Death of Professor Emeritus I. Martin Isaacs

On Monday, February 17, 2025, the UW math department lost an outstanding researcher and an award-winning teacher. Professor Emeritus I. Martin Isaacs succumbed to kidney failure. He was 84 years old and had been living in Berkeley, California since his retirement.

Marty Isaacs was born on April 14, 1940 and brought up in the Bronx, New York. He attended the Bronx High School of Science where he was a member of the school math team. He learned calculus from the chairman of the math department who moonlighted in the evenings, teaching at the Polytechnic Institute of Brooklyn, a technical college now part of NYU. He convinced Marty to go there and so he did. In his senior year at Poly, Marty was on the school's winning Putnam team and he became a Putnam Fellow, placing in the top tier of individual winners. This got him admitted to Harvard graduate school with appropriate scholarships.

Marty was a graduate student at Harvard University from 1960 to 1964 where he studied with the famous Professor Richard Brauer who later received a National Medal of Science. His thesis concerned linear groups and a problem of Blichfeld. He received his PhD in June of 1964. That summer he planned to celebrate by sightseeing and driving throughout Europe. Unfortunately, he was in a serious automobile accident in France which left him disabled and disfigured. He spent several months in what is now called Hôpital Cochin (the hospital where Galois died) before being returned to the United States. He then spent well over a year in the burn unit of Columbia Presbyterian Hospital in New York City. A lesser person might have let this accident dampen his future. But Marty left the hospital, got on with his life, and never looked back.

Marty's first academic position was as an instructor for three years at the University of Chicago. He came to UW-Madison in 1969 as an Associate Professor in the math department with tenure and was awarded a Sloan Fellowship in 1971. That same year, he was promoted to Full Professor, at the age of 31. He remained in the UW math department until he retired in 2011.

Marty's main research interest was in finite group theory, although he worked in many other aspects of algebra. He was surely the world's leading expert on the character theory of finite groups. Among other things, he is known for the Glauberman-Isaacs character correspondence and his solution to the famous groups of central-type conjecture. Furthermore, Marty began the study of character degrees and he made the first major advances on what is known as the Isaacs-Seitz conjecture. He and Persi Diaconis began supercharacter theory and his π -theory generalized the Brauer character theory on solvable groups. In addition he has substantial theorems on M -groups and his results on the characters and conjugacy classes of upper triangular matrices initiated the more general study of groups associated with algebras.

In his later years, Marty returned to studying the McKay conjecture. Early on, in 1973, he made the first major advances towards proving it. In his more recent work with Gabriel Navarro, the conjecture was reformulated to better understand it. Then with Navarro and Gunter Malle, the problem was reduced to the case of simple groups, which

was later handled by Cabanes, Spath and others. Thus the McKay conjecture was finally proved.

During his career, Marty wrote over 200 research papers and he was a member of the inaugural class of Fellows of the American Mathematical Society. In June 2009, a conference on character theory was held in his honor in Valencia, Spain.

In addition, Marty had always been passionate about teaching and exposition. He was quite possibly the best teacher in UW's math department, and he received numerous teaching awards. Indeed, he received the UW-Madison Distinguished Teaching Award in 1985, the Tau Beta Pi Teaching Award in 1988, the Benjamin Smith Reynolds Award for Teaching Engineering Students in 1989, the Wisconsin Section MAA Teaching Award in 1993 and the MAA Polya Lectureship in 2003–2005. Over the years, Marty mentored 29 PhD students, and wrote books on character theory, character theory of solvable groups, finite group theory, first year graduate algebra, and even one on geometry for college students. He recently endowed the “I. Martin Isaacs Prize for Excellence in Mathematical Writing” administered by the American Mathematical Society.

For 31 years, he was in charge of the Mathematics Talent Search which offered challenging math problems to middle and high school students throughout the state and indeed the world. It is the department's leading and most well-known outreach program.

Marty is survived by his long-time companion Deborah Finch, his sister Rosalie Isaacs, his brother-in-law Alan Bross, his god-child Barbara Passman Brownsword, the rest of the Passman family, namely Marj, Don and Jon, and numerous friends and admirers in the mathematical community including Persi Diaconis, George Glauberman, Robert Guralnick, Mark Lewis, Gabriel Navarro, and of course his PhD students.

Don Passman

Abstract

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