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In Memoriam: Joseph A. Shalika 1941-2010

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American Journal of Mathematics, Volume 132, Number 6, December 2010, pp. iii-iv (Article)

Published by The Johns Hopkins University Press

AMERICAN JOURNAL
OF MATHEMATICS

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**IN MEMORIAM:
JOSEPH A. SHALIKA
1941–2010**



Photo courtesy of JHU Mathematics

I started my graduate studies at the Johns Hopkins University in 1971, the same year that Joe Shalika moved back to his alma mater. His sharp intelligence and talent, together with his cheerful and kind personality very quickly attracted me to work with him as his first student, a warm friendship that lasted throughout our lives.

Shalika's contributions to representation theory and automorphic forms are numerous. His thesis under F. I. Mautner is still considered as a pioneering work in p -adic group representations. The joint work with Paul Sally on explicit Plancherel formulas for $SL(2)$ which followed seems to have found recent interest in Langlands' new ideas on functoriality.

His first global result appeared in a joint work with S. Tanaka, constructing automorphic forms on $SL(2)$ by means of theta distributions as suggested by Weil.

Following Harish–Chandra, he proved what is now called the “Shalika germ expansion” for semisimple orbital integrals of semisimple groups, central objects in Arthur’s trace formula whose unramified matchings, the so called “Fundamental Lemma”, was recently proved by Bao Châu Ngô.

A large portion of Shalika’s career was devoted to the theory of L -functions for $GL(n)$, all of it joint with Hervé Jacquet and a few by both of them and the late Ilya Piatetski–Shapiro. This rich theory of zeta functions, which occupies an important chapter in number theory, has played a central role in the theory of automorphic forms and the Langlands program, culminating in two major papers in the *American Journal of Mathematics* that allowed them to classify automorphic representations of $GL(n)$ over number fields. Central to this theory is his important joint work with Bill Casselman, which generalized Shintani’s work and gave a formula for unramified Whittaker functions on any reductive group, a result of significance in my own work.

Shalika’s career continued to the end of his life through his work with his later students, M. Furusawa and R. Takloo–Bighash, working mainly on arithmetic aspects of the theory, and in part with Y. Tschinkel. Joe served as chair of the Department of Mathematics at Hopkins from 1979 to 1982. He was also an Associate Editor of the *American Journal of Mathematics* from 1984 to 1993.

Joe’s 60th birthday was celebrated with a conference organized by Dinakar Ramakrishnan, Steve Zelditch, and me at Hopkins in May of 2002. He was very happy and delighted to see many of his old friends who came for the occasion. A volume was later published in honor of his birthday by the JHU Press.

Joe never lost his love for mathematics. Our dinner conversation during my last visit in April of 2010 was mainly occupied with mathematical discussions and his latest work with Furusawa, at the end of which I promised to send him a number of papers of interest, which I did.

Joe rarely traveled, but those who met him were taken by his unassuming, kind, and generous personality. After his retirement in 2009, many of us lost contact with him and if it wasn’t for an accidental encounter with a former student of Igusa, Leon Strauss, we would not have had the fine memories of phone conversations and visits that took place in the last year of his life, memories which I now cherish every moment of.

Joe Shalika passed away on September 18, 2010. He was 69. He will be missed by all of us.

Freydoon Shahidi, October 2010