

Dr. Arlie O. Petters — Biography

Dr. Arlie O. Petters is a Full Professor of Mathematics, Physics, and Business Administration at Duke University. He was recruited by Duke from Princeton in 1998. Prior to Duke, Dr. Petters was an Assistant Professor of Mathematics at Princeton from 1993 to 1998 and was an Instructor of Pure Mathematics at MIT from 1991 to 1993. He holds a 1991 Ph.D. in mathematics from MIT with specialization in mathematical physics.

His career began at Hunter College of the City University of New York, where he was part of an accelerated B.A./M.A. program for exceptional undergraduates. Dr. Petters graduated from Hunter in 1986 and was the recipient of many awards in Mathematics and Physics. Hunter honored Dr. Petters by inducting him in 1999 into the Hunter College Hall of Fame and awarding him in 2008 an honorary Doctor of Science degree.

Dr. Petters's research on gravitational lensing deals with how light is affected by the warping of space and time. He was the first to develop the mathematical theory of gravitational lensing, which brought powerful methods from pure mathematics to bear on astronomy. Dr. Petters also pioneered new applications of gravitational lensing in physics, predicting effects that probe the nature of spacetime around black holes and developing tests of gravitational theories like Einstein's general relativity and hyperspace gravity models. He is the leading author of the book *Singularity Theory and Gravitational Lensing*, which was the first book to put weak deflection gravitational lensing on a rigorous mathematical foundation. In addition, he wrote three problem-solving texts with student and teacher editions, covering elementary and high school mathematics and scientific reasoning. Dr. Petters's current work also delves into the world of mathematical finance, where he is co-authoring a two-volume text on the subject.

Dr. Petters has received numerous awards and honors for his innovative research, including an Alfred P. Sloan Research Fellowship, an NSF Career grant award, and the first Blackwell-Tapia prize in Mathematical Science. He was also selected in 2006 by the National Academy of Sciences to be part of a Portrait Collection of Outstanding African Americans in Science, Engineering, and Medicine. His portrait is on permanent display at the National Academies Keck Center in Washington, DC.

In addition to being a researcher, Dr. Petters has given back to the African-American community as well as other communities by dedicatedly helping and mentoring many students, faculty, and professionals. He has consequently received several community-service awards. Dr. Petters's career at Duke is also marked by several firsts as an African-American, becoming the first to be tenured in the Department of Mathematics, the first to hold a joint appointment with Mathematics, Physics, and the Business School, and the first to be elected to Duke's prestigious Bass Society of Fellows.

Dr. Petters also founded in 2005 the Petters Research Institute in Belize as a way of giving back to the country of his birth. The institute is a center of excellence

in mathematics, science, and technology, and fosters national development through entrepreneurship and innovation in these fields. His vision for the country is to create economic growth through high-technology industries that draw on Belizean intellectual capital. Dr. Petters is spearheading these efforts in close collaboration with the Government of Belize and Duke's Fuqua School of Business, where he has a joint appointment on the faculty.

In recognition of Dr. Petters's scientific and educational work, he was named in 2008 by the Queen of England to Membership in the Most Excellent Order of the British Empire.