

Dr. Arlie Petters—Professional Biography

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Dr. Arlie Oswald Petters is the Benjamin Powell Professor and Professor of Mathematics, Physics, and Business Administration at Duke University. He was also the William and Sue Gross Associate Professor at Duke from 1998-2003. Before coming to Duke, he was an Assistant Professor of Mathematics at Princeton University for five years (1993-1998) and an Instructor of Pure Mathematics at MIT for two years (1991-1993). Dr. Petters received his Ph.D. in mathematics from MIT in 1991 with a specialization in mathematical physics.

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

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 gravitational lensing on a rigorous mathematical foundation. He wrote three problem-solving books on mathematics and scientific reasoning for elementary and high school students and is co-authoring a monograph, "Gravitational Lensing and Black Holes," and a textbook, "Mathematical Finance with Applications." Dr. Petters's work at the Fuqua School of Business has dealt with finance, social entrepreneurship, and environmentally sustainable STEM (Science, Technology, Engineering, and Mathematics) business efforts in a developing world setting.

Dr. Petters has received many awards and honors for his innovative research, including an Alfred P. Sloan Research Fellowship, an National Science Foundation Career grant award, and the first Blackwell-Tapia Prize in the Mathematical Sciences. 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. The collection is on permanent display at the Keck Center in Washington, DC.

In addition to being a researcher, Dr. Petters has given back to the African-American community and other communities. He has dedicatedly helped and mentored numerous underrepresented minority and majority students, faculty, and professionals, and consequently received many 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 triple appointment with Mathematics, Physics, and the Fuqua School of Business, and the first to be elected to Duke's Bass Society of Fellows.

In 2005 Dr. Petters founded the Petters Research Institute as a way of giving back to Belize. The institute is a center of excellence aimed at developing the Belizean human capital in STEM fields and fostering Belize's national development through environmentally sustainable applications of STEM tools in entrepreneurship and innovation. Dr. Petters is spearheading these efforts in close collaboration with governmental, educational, and private sector entities in Belize.

In recognition of Dr. Petters's outstanding 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, he was honored in 2009 with a street in his name in Dangriga, Belize, and he was appointed in 2010 as the inaugural Chairman of the Council of Science Advisers to the Prime Minister of Belize.