

Dr. Arlie O. Petters is the Benjamin Powell Professor of Mathematics and a Professor of Physics and Economics at Duke University, where he has been on the faculty since 1998. At Duke, he served as the Dean of Academic Affairs for Trinity College of Arts & Sciences and Associate Vice Provost for Undergraduate Education (2016-2019). Dr. Petters was also a Professor of Business Administration at Duke's Fuqua School of Business (2008-2016) and the William and Sue Gross Associate Professor of Mathematics (1998-2003). Before coming to Duke, he was an Assistant Professor of Mathematics at Princeton University (1993-1998) and an Instructor of Pure Mathematics at Massachusetts Institute of Technology (MIT) (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 in mathematics and physics 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' research explores how gravity acts on light. He pioneered the mathematical theory of weak-deflection gravitational lensing, which brought powerful methods from pure mathematics to bear on astronomy. Dr. Petters also advanced applications of gravitational lensing, which included predicting effects that probe the nature of spacetime around black holes and developing tests of Einstein's general relativity and modified gravity models. He has written five books: the monograph *Singularity Theory and Gravitational Lensing*, which was the first book to put gravitational lensing on a rigorous mathematical foundation; the textbook *An Introduction to Mathematical Finance with Applications* for upper-level undergraduates and first-year master's degree students; and three problem-solving books on mathematics and scientific reasoning for middle- and high-school students. He is currently co-authoring a monograph, *Gravitational Lensing and Black Holes*. Dr. Petters' work at the Fuqua School of Business involved teaching finance courses and examining opportunities for social entrepreneurship and environmentally sustainable STEM<sup>1</sup> business efforts in a developing-nation setting.

Among the many awards Dr. Petters has earned for his innovative research are an Alfred P. Sloan Research Fellowship, a National Science Foundation CAREER 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.

Along with being a researcher, Dr. Petters has given back to the African American community and other communities. He has dedicatedly mentored numerous underrepresented minority and majority students, faculty, and professionals, and has consequently received many community-service awards. Dr. Petters' career at Duke is also marked by several firsts as an African American and Belizean 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.

As a way of giving back to Belize, Dr. Petters founded the Petters Research Institute in 2005. The institute is a center of excellence aimed at helping develop Belizean human capital in STEM fields and foster Belize 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' outstanding scientific and educational work, the Queen of England named him to Membership in the Most Excellent Order of the British Empire in 2008, his birthplace, Dangriga, Belize, honored him in 2009 with a street in his name, and the Prime Minister of Belize appointed him in 2010 as the inaugural Chairman of the Council of Science Advisers to the Prime Minister of Belize. He was selected in 2012 as Grand Marshal of the Central American Independence Day Parade in Los Angeles.

Petters life, research, and outreach work have been profiled in many media outlets, including the *New York Times*, *PBS NOVA*, *MSNBC*, *MIT Technology Review*, and Channels 5 and 7 News, Belize.

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<sup>1</sup> STEM: Science, Technology, Engineering, and Mathematics

