



# Elmer *Imes*

A QUANTUM PHYSICIST DURING THE HARLEM RENAISSANCE

## A Brilliant Scientist

Elmer Samuel Imes was born on October 12, 1883 in Memphis Tennessee to Benjamin Albert Imes and Elizabeth Wallace. The Imes family has roots in the southern central region of Pennsylvania and had the distinction of being college educated in the early twentieth century. They descended from several generations of free African Americans.

Elmer Imes went to grammar school in Oberlin, Ohio where his father had graduated from college. From about 1895 to 1899, Imes attended Agricultural and Mechanical College High School in Normal, Alabama and earned his Bachelor's degree from Fisk University in 1903. He wanted to study physics further, and was unable to study at southern schools due to racial segregation and discrimination, so he selected the University of Michigan, which was a leader in infrared spectroscopy. After graduating from the University of Michigan with a Ph.D. in Physics in 1918, Imes became the second African

American (following Edward Bouchet in 1876) to receive a Ph.D. in Physics. Imes' dissertation studied molecular structures through high-resolution infrared spectroscopy. His work made a significant impact on the growing field of quantum physics by demonstrating that quantum theory could be applied to radiation in all parts of the electromagnetic spectrum, something that was in question in the early 20th century. In the years after his dissertation was published in the *Astrophysical Journal*, his work was cited extensively in research papers and reviews of literature. Within a short time, his work was also incorporated into textbooks on modern physics.

Despite his brilliance as a scientist, Imes had difficulty finding employment in academia. Instead, he became a physics consultant and researcher in New York. During this time, he secured four patents for instruments used to measure magnetic and electrical properties.



*Elmer Imes with his signature pipe circa 1937. Image courtesy of Fisk University Library Special Collections.*



Elmer Samuel Imes, Fisk University Library Special Collections, courtesy AIP Emilio Segre Visual Archives.

## Imes and the Harlem Renaissance

After completing his doctorate, Imes lived in New York during an exciting time in American history called the Harlem Renaissance. After World War I, owing in large part to Jim Crow laws, thousands of southern African Americans migrated to Northern urban areas. This moment in history is now known as the Great Migration. Though they were in part caused by Jim Crow segregation, the Harlem Renaissance and the Great Migration were literary and intellectual movements that resulted in new Black cultural identities and expressions.

While in New York, Imes met and married Nella Larsen in 1919. Larsen was a novelist who became a major figure in the Harlem Renaissance. Imes eventually corresponded with the likes of W.E.B. DuBois and Langston Hughes.

In 1930, Imes returned to Fisk University to establish and chair the Physics Department at Fisk University. Imes' interest in infrared spectroscopy set the direction of the department's early research.

At Fisk, Imes was concerned about exposing students to the history of science. He developed a course called "Cultural Physics" in which he presented students with the history of science from the Greeks until the twentieth century. He was also involved in a number of professional societies such as the American Physical Society and the American Institute of Electrical Engineers. In the late 1930s, Imes' health began to deteriorate and he passed away on September 11, 1941 in New York.

## Physics at Fisk University

Fisk's longstanding legacy of excellence is reinforced by its accomplishments in the 21st century, especially in the Physical Sciences.

As of 2006, no U.S. institution awards more masters in physics degrees to African-Americans than Fisk, which is also one of the top ten U.S. institutions awarding masters degrees in physics to U.S. citizens of any ethnic background. In 2012, the Fisk-Vanderbilt Master's-to-Ph.D. Bridge Program graduated five Ph.D. recipients in the physical sciences and is on track to graduate this number each year. This is ten times the national average for physical science Ph.D. programs.

In September 2012, the National Science Foundation released its most recent study ranking U.S. higher education programs by their expenditures in research and development. Fisk University's research in the physical sciences ranks in the top 3% while Fisk's overall research ranks in the top 8 percent among all U.S. universities and colleges. Fisk University has a history of educating and training African American students and other underrepresented groups who go on and earn

advanced degrees, from the beginning of the physics major to the recently established Masters-to-PhD Bridge Program.

Fisk has earned four R&D 100 Awards for work in the creation of radiation detectors developed in collaboration with several national laboratories and corporations. No other HBCU has ever earned an R&D 100 Award.

According to the National Science Foundation, Fisk produces more African-Americans who earn doctoral degrees in the natural sciences than any school in the nation.



## LEGACY

The legacy of Dr. Elmer Imes lives on through scholarships created in his name.

The Imes-Moore Fellows Program, named after Imes and Willie Hobbes-Moore, the first African American woman to earn a Ph.D. in Physics, is a Master's degree bridge program at the University of Michigan. The program prepares students for doctoral studies in physics and engineering.

## RESOURCES

Ronald E. Mickens, "Elmer Samuel Imes — Scientist, Inventor, Teacher, Scholar," in *Edward Bouchet: The First African-American Doctorate* (River Edge, NJ: World Scientific Publishing, Co., 2002), 101-107.

Elmer Imes Collection at Fisk University Library Special Collections.