

# BLACK SCIENTIST SHOWCASE



## Leland D. Melvin

1964–

**Material Engineer  
& Astronaut**



**KeyBank Future Innovators in STEM**

Learn about our free STEM  
program for BIPOC students!

### Background

Leland Melvin was born and raised in Lynchburg, Virginia. He attended the University of Richmond on a football scholarship, finishing with a chemistry degree in 1986. That year, he was selected by the Detroit Lions in the NFL draft before a hamstring injury ended his professional football career.

### Materials Engineering Career

In 1989, Melvin began working in the Nondestructive Evaluation Sciences Branch at NASA Langley Research Center. There, he developed instruments and techniques for use in **nondestructive evaluation**, or NDE. He specialized in using fiber optic sensors to test a variety of specifications, including strain (deformation under stress), temperature, and chemical damage. He also continued his education, completing a master's in materials science engineering at the University of Virginia in 1991. In 1994 he was chosen as a team lead for NASA and Lockheed's Reusable Launch Vehicle program.

### Astronaut Career

In 1998, Melvin was selected for NASA's astronaut candidate training program. Although his training was delayed by an ear injury while training in the Neutral Buoyancy Laboratory, he eventually traveled to the International Space Station twice, once in 2008 and again in 2009. He also worked for several departments within NASA, including the Office of Education, where he was responsible for developing and implementing STEM programs that raised interest in NASA's missions and goals.

### STEM Vocabulary Word

**Nondestructive evaluation**—a process that allows parts to be tested without being damaged or destroyed

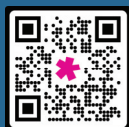
# BLACK SCIENTIST SHOWCASE



## Guy Brown

1992–

**Meteorologist**



**KeyBank Future Innovators in STEM**

Learn about our free STEM  
program for BIPOC students!

### Background

Guy Brown was born and raised in Washington, D.C. As a child, his interest in meteorology was piqued while storm watching during visits with his grandparents. He received an associate's degree from the College of Southern Maryland and then completed a bachelor's degree in electronic media with a minor in meteorology at Towson University in 2015. After college, he took a position at ABC as a production assistant before getting the chance to work as a meteorologist.

### Meteorology Career

In 2016, Brown moved from Washington, D.C., to Cheyenne, Wyoming, to begin working as a meteorologist. The two cities have very different climates; while Washington experiences relatively mild winters and is often humid in summer, Cheyenne experiences cold, arid winters and frequent snowstorms. In Cheyenne, he covered a 2017 tornado outbreak that included 22 reported tornadoes. Over the next several years, Brown worked in Madison, Wisconsin, and Minneapolis, Minnesota, covering all sorts of conditions and **severe weather**, before relocating again in 2023 to New York City, where he currently works as a meteorologist for Spectrum News.

Brown is also a children's author and has released *Look Up to See What the Weather Will Be*, a weather journal for kids, in both English and Spanish.

### STEM Vocabulary Word

**Severe weather**—meteorological events that pose risk of destruction and/or death; includes heavy thunderstorms and blizzards, tornadoes and hurricanes, high winds, and floods

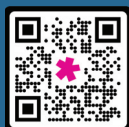
# BLACK SCIENTIST SHOWCASE



## Joan Murrell Owens, PhD

1933–2011

Marine Biologist



KeyBank Future Innovators in STEM

Learn about our free STEM  
program for BIPOC students!

### Background

Joan Murrell Owens was born and raised in Miami, Florida, and grew up fascinated by the ocean. In the 1950s, most historically Black colleges & universities (HBCUs) did not offer marine biology programs, including Owens' alma mater Fisk University, so she studied fine art with minors in mathematics and psychology. She continued her schooling with a master's degree in guidance, working in education for over a decade before increasingly complex curriculum and gender pay gaps pushed her again to pursue her dream of becoming a marine biologist.

### Marine Biology Career

In 1970, at the age of 37, Owens enrolled at George Washington University, earning a bachelor's and then a master's degree in geology by 1976. While working toward her doctorate at George Washington University, she taught at Howard University as a geology professor. In 1985, Owens became the first African American woman with a PhD in geology.

Owens is best known for her work with button corals. Although sickle cell anemia made it impossible for her to dive and collect her own specimens, she furthered her research through the study of other collections at the Smithsonian by using **thin sectioning** to examine and catalog their physical properties. In 1986 she discovered a new genus, *Rhombopsammia*, and its two species. In 1994, she discovered another species under the genus *Letepsammia*, which she named for her husband.

### STEM Vocabulary Word

**Thin sectioning**—taking a very thin (30  $\mu\text{m}$ ) slice of a rock or mineral so that it can be examined using polarized light and specialized microscopes



# BLACK SCIENTIST SHOWCASE



## Joseph Francisco, PhD

1955–

Chemist



KeyBank Future Innovators in STEM

Learn about our free STEM  
program for BIPOC students!

### Background

Joseph Francisco was born in New Orleans and raised in Beaumont, Texas, by his grandparents. He was interested in chemistry as a child, constantly performed experiments, and worked at a pharmacy in junior and senior high school. Despite this interest, he might not have attended college without encouragement and guidance from his high school teacher and a professor at nearby Lamar University.

### Chemistry Career

In 1973, Francisco began studying chemistry at the University of Texas at Austin. Although the campus had been legally integrated in the late 1950s, Black students were still not welcome in many social spaces on campus, and his freshman roommate moved out due to Francisco's race. He graduated in 1977, then continued his studies at MIT, where he received his PhD in chemistry in 1983.

Francisco's specialty is atmospheric chemistry, or the chemical interactions that happen in the atmosphere. Many of his discoveries are related to **acid rain** and the chemical processes that create it. He is especially interested in how the Earth's atmosphere handles pollutants, especially nitric acid, which is a major component of acid rain.

Francisco is internationally recognized for his work and has served as a visiting professor at universities in several countries. He has served as the president of both the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE) and the American Chemical Society (ACS).

### STEM Vocabulary Word

**Acid rain**—unusually acidic precipitation; while the pH of drinking water ranges from 6.5-8.5, the pH of acid rain ranges from 4-5