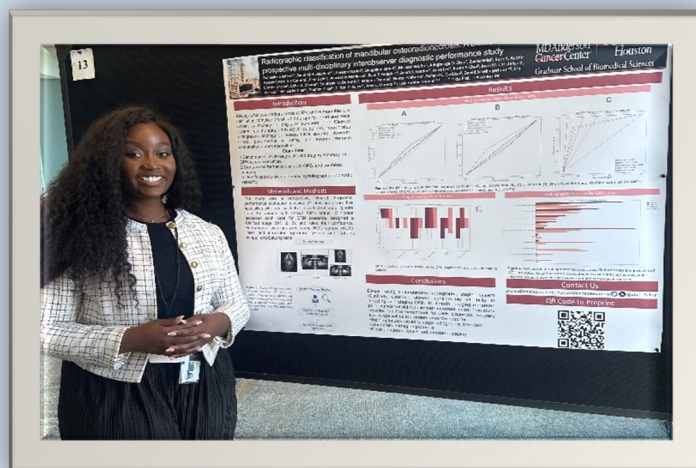
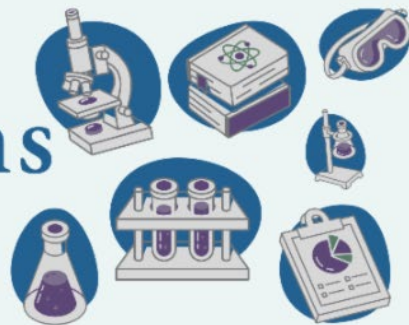


GSBS Office of Career Development

# Career Connections

A monthly newsletter highlighting  
career & funding opportunities



## Zaphanelene Kaffey

4<sup>th</sup> Year, Medical Physics PhD Program

### **1. Ruth L. Kirschstein Predoctoral Individual National Research Service Award (F31, PA-25-422)**

**Title:** “*The development of an early detection tool for oral-dental radiation induced injury.*”

**Opportunity Details:** The [NIH F31](#) enables promising predoctoral students to obtain individualized mentored research training from faculty sponsors while conducting biomedical research.

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### **Detecting Invisible Injuries: Using Physics to Reduce Side Effects of Radiation for Cancer Treatment**

For Zaphanelene Kaffey, the path to medical physics began at a physics research conference during her junior year of college. Kaffey was invited to the conference to present her own progress in an astrophysics lab. She attended a talk by Julianne Pollard-Larkin, PhD, that introduced a field she hadn't known existed: medical physics. Until that conference, physics and medicine felt like separate paths, but Kaffey was inspired. She returned to her hotel room and spent hours researching medical physics, realizing it offered a way to

combine the precision of physics with meaningful human impact.

*“[Medical physics] felt like discovering the name for something I had always been looking for but never knew existed”*

Now a PhD candidate in the lab of Clifton Fuller, PhD, Kaffey studies how to improve outcomes for patients undergoing radiation therapy for head and neck cancer. While radiation is effective at treating tumors, it can also damage healthy tissue. This damage sometimes leads to osteoradionecrosis, a condition that deteriorates the jawbone and is difficult to treat. She utilizes CT imaging to detect these injuries before patients experience symptoms allowing doctors to adjust treatment strategies and determine which patients are most at risk and where in the jaw that injury risk is highest.

### **More Than Just a Number: Support at the Graduate School**

Kaffey credits the Graduate School and her mentor, Dr. Fuller, with her successes both in the lab and in writing. She explained that the Fuller lab is dedicated to true team science, with a philosophy that the lab is people-first and collaborative. Ambitious science driven by working together is critical to both the lab’s success and her own.

*“That kind of environment creates a special place where ambitious science can happen, because you are not seen as just a graduate student or a number [...] that makes all the difference”*

With a background in creative writing, Kaffey found that scientific writing was not nearly as natural for her. An avid poet, she utilizes her creative writing to process the world and her identity in it. While this background is critical for bringing creativity into how she approaches research problems, the rigid structure and style of scientific writing was challenging. She views scientific writing as a muscle that needs to be “worked out” to strengthen it. It requires intentional dedication to become a quality scientific writer, and utilizing the resources at the Graduate School is one way she ensured grantsmanship and scientific communication success.

She credits the structured guidance of both the Scientific Writing and NIH Fellowship Proposal Development courses as a leading factor that allowed her to submit her grant on time with high-quality content. She found the large number of documents and formatting requirements to be a significant challenge. These courses provided the structure, examples, and pacing she needed to produce a competitive and successful application. Kaffey also found that creating your own deadlines (and sticking to them!) and blocking your calendar for dedicated writing time are critical approaches for accountability in writing.

*“I actually enjoyed spacing out my work and taking the time to write, revise, and send drafts to mentors for feedback. The process taught me that I am capable of sustained, disciplined work when I give myself the time and structure to do it well.”*

### **Success in Science Inspires Kaffey to Give Back**

Beyond research and funding, receiving the F31 has had a profound personal impact on Kaffey. She notes that less than 5% of physicists are Black, and her experiences in the field have at times led to her feeling out of place. This fellowship has helped shift that perspective, giving her confidence and reinforcing that she has a bright future in medical physics. Kaffey encourages others to embrace what makes them unique in science and to be visible in ways that can inspire and support those who may be following a similar path.

Her success in science also drives her to give back through service and education. From national student committees at the American Association of Physicists in Medicine to serving as an active member of education and curriculum committees at the Graduate School, Kaffey actively works to make science more accessible and appealing to her peers, local students, and the public. She plans to continue her career in academic research as a medical physicist. Her goal is to work in the clinic delivering patient care while also maintaining an active research program. As a former high school physics teacher, she is passionate about education and plans to make time for teaching and educational development to prepare the next generation of medical physicists for success.

*Kaffey (far left) poses with the Fuller Lab.*

