

Being Black in biophysics

SEEING

Building off the momentum of the Black Lives Matter movement and serving as a platform for radical reform of structural inequities, the Biophysical Society (BPS) held the President's 2023 Black in Biophysics Symposium. The goal of this symposium was to bring to light the remarkable work of some of our Black BPS colleagues flanked by two very different cultural perspectives explaining why, in these modern times, such a spotlight is still needed. In his introduction, Bil Clemons provided data to underscore the persistent legacy of slavery, and Theanne Griffith closed the event with a moving personal testimony. BPS has long served as a platform for social change, most successfully in its effort to promote participation by women and international scientists. These were intentional acts, and the resulting positive changes are sustained only by constant vigilance. Let us apply the same intention, the same vigilance, to fostering diversity, equity, inclusion, and retention within our ranks and providing critical role models for trainees of all walks of life. Let us start seeing Black in biophysics, with the generous help of Bil and Theanne in their own words.

– Gail A. Robertson.

THE STATUS QUO

In the late spring of 2020, with the world stuck at home due to a pandemic, we witnessed the brutal murder of a Black American at the hands of people who had been sworn to protect him. George Floyd and I were born within a week of each other, a state apart, in a country where our race was often our most defining factor. In those video frames, where all saw horror, some Americans also saw themselves held down by a knee, unable to breathe. This led to worldwide calls for change. For me, ensconced in academia, I could see the change among many of my colleagues who actively joined the efforts of those of us who have been working to create inclusive spaces. This was when the BPS first fully reflected on its own complicity in maintain-

ing the status quo that had, in effect, excluded so many from joining its ranks.

At the 2021 BPS Annual Meeting (BPS2021), Past-President Catherine Royer used her symposium (1) to ask the question “what would an inclusive Biophysical Society look like?” This virtual session included me, Yadilette Rivera-Colón (Baypath University), David Asai (HHMI), and Billy Williams (American Geophysical Union). We had an open forum to discuss many questions, such as how we address bias at all levels of BPS, how we support minoritized trainees, and how we equalize the hidden costs of pursuing diversity. A key takeaway for me from my esteemed colleagues was the importance of being good mentors and finding good mentors—work that is often undervalued but critical to the success of an inclusive society. This was followed at BPS2022 by the first Justice for Underrepresented Scholars Training in Biophysics (JUST-B) poster session organized by Theanne Griffith. The session highlighted the importance of providing spaces where trainees from historically excluded backgrounds could be brought to the fore. Clearly, progress was being made in the efforts of the BPS, led by determined leadership.

For BPS2023, Past-President Gail Robertson decided to commit her symposium to elevating #BlackInBiophysics. The focus was to build on the successful efforts of the society to promote change broadly in the physical and life sciences. In 2023, one might ask “why hold a symposium focused solely on a single racial group?” The annual BPS meeting falls within Black History Month, and it is relevant to focus on the state of Black scientists within the society. When we consider diversity at any level, it is important to consider what a successful inclusive environment might look like. As scientific skill is distributed equally without regard to race or gender, one would expect that the demographics within any organization would reflect the society within which it exists. For the United States, this would mean that Black and African Americans should represent more than 13% (2) at all levels of a society like BPS and within science more broadly. Unfortunately, this is far from the reality. In academia, Black and African American faculty represent only 6% of the total faculty pool, less than half

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of what we should expect (3). This number remains unchanged over the last decade despite the lofty goals espoused across institutions. Funding disparities also exist. In a 2011 report on funding inequality at the National Institutes of Health, it was determined that when all factors were normalized, only Black and African American primary investigators were statistical outliers, with a 10% lower chance of getting R01 grants than their White colleagues (4). In 2018, despite significant effort, this number remained unchanged (5). These disparities can only be resolved by dedicated work.

In 2023, the demographics of BPS lag far behind, even when just considering academia. Black and African American members of the society represent only 2% of the total group. To date, not a single Black or African American has been awarded any of the main society awards. If we want to change these numbers, we must be proactive and forward thinking. The Black in Biophysics Presidential Symposium aimed to do this. The speakers in the symposium represent excellence across the spectrum of biophysics. Up first was Kandice Tanner, a senior investigator from the National Cancer Institute, who has served on the BPS council and as nominating committee chair. Her scientific journey began at a historically black university and serves as inspiration toward the support of these institutions. She shared her work on profiling the microenvironments associated with the metastatic transition for cells. Up next was the most junior speaker, Professor Jerelle Joseph, who recently started her position at Princeton. She gave an exciting talk about her work on coarse-grained computational models for biomolecular phase separation. Third was Professor Lisa Jones, who recently moved her lab to the University of California San Diego. Professor Jones shared her lab's development of novel mass spectrometry-based protein footprinting, bridging in vitro and in vivo structural studies. The final science talk was by Aaron Streets, a professor at the University of California, Berkeley, who demonstrated how single-cell measurements can reveal new biology. Professor Streets obtained his bachelor's degrees in both physics and art, beautifully demonstrating the benefits of uniting the disciplines for discovery. The session was closed by Theanne Griffiths with a thoughtful summary of the impact BPS can have on a career and an important call to action.

Reflecting on what I took away from the event, I was humbled by the impressive science that I heard. In many instances since the session, colleagues have remarked on how the session was the best overall scientific session that they attended (which even includes the second session that I chaired later in the meeting). To me, the event was more than a success. It highlighted great science by a group of scientists that have not typically taken center stage at previous meetings. None who attended had any doubt that Black scientists, like all other demographic

groups, are central to the success of both our scientific endeavor and our BPS. I'm already looking forward to the next #BlackInBiophysics-themed event at BPS.

– William M. Clemons, Jr.

IMAGINING THE FUTURE

I was honored to have the opportunity to co-chair the 2023 Black in Biophysics Presidential Symposium, and I would like to extend my gratitude to the former BPS President, Dr. Gail Robertson, for recognizing the necessity of this session and ensuring that it came to fruition. These events are important. They are important because historically speaking, and not so historically speaking, the contributions of Black biophysicists have been overlooked. This symposium was also especially important given that one of the core values of BPS is diversity, equity, and inclusion. Indeed, the mission of the Society is “to lead an *innovative global community* working at the interface of the physical and life sciences, across all levels of complexity.” The Society's vision is “to harness *the full potential of biophysics* to seek knowledge, improve the human condition, and preserve the planet for future generations.” It is impossible, however, to harness the full potential of biophysics without tapping into the full potential of all biophysicists. On the basis of current Society membership demographics, as a community, we still have a long way to go before that vision is realized.

I attended my first BPS meeting in 2015, when I was close to finishing up my graduate training and figuring out the next steps in my career. The demographic makeup of meeting attendees was no different than other scientific meetings I had previously attended; that is, it was not very Black and not particularly Brown. And no matter how many times I've been the “only one” or “one of few” in a room, it doesn't get less uncomfortable. In these situations, I feel like my confidence becomes haunted by the ghosts of the recent past. “Do I belong?” I often ask myself. Yet at the 2015 meeting, I was surprised by an intangible and hard-to-describe feeling. I felt comfortable. I felt welcome. And believe it or not, I also felt invited. It is important to emphasize that this does not necessarily represent the experience of all people who look like me. The Black community and the Black in Biophysics community are not monoliths. But in my case, the vibe I got from attending that BPS meeting was different from the vibe I felt when attending other scientific society meetings. What really stuck out to me was a sense of potential. When I reflect on this now, it makes sense that potential is a keyword in the Society's vision. As I continued attending BPS annual meetings, I could feel both the room for growth and willingness to change to do so. To do better. I wondered if I was being naive and whether those feelings were red herrings. But as the years passed, I felt my first impression was valid. I grew to love, and trust, the community I found at BPS.

This was a huge motivating factor for me in creating the JUST-B poster session. Even though BPS does not have a glowing track record for being diverse, I saw space in the community for us. That “space” just needed to be carved out, formalized, and intentionally created. I was nervous as to whether we would have enough interest, enough participants, or enough attendees. After all, Black biophysicists are only 2% of the BPS membership, a depressingly low statistic. Latinx scholars aren’t fairing much better, representing just under 6% of Society membership. But I knew in my heart that if the space was created, people would show up. And not only did we show up, but we also showed out. For the inaugural poster session in 2022, when people were slowly and cautiously returning to in-person meetings, JUST-B had 44 poster presenters and roughly 200 attendees and received generous sponsorship from academic and industry partners alike. This year we reached capacity, with 50 people from various career stages, including 8 undergraduate students presenting. The success of JUST-B confirmed what I always knew. We have been here, we are here, and we will always be here. And importantly, we want to be here.

I write science-themed books for children. One of the series I author features a little Black girl named Ada Twist. Ada loves science, and she also loves asking questions. Sometimes people get annoyed with all the questions she asks, but that doesn’t bother Ada. I feel a lot like Ada sometimes because even though I know we’ve been here, are here, and will always be here, I want to know more. How can we bring more of us on this journey? Where are we going? How are we going to get there? Who is going to support us? A poster session and symposium are wonderful starting places, but what is next? And perhaps the most important question I have, how much “skin” is the BPS willing to put in this “game?” With current strategies in place, who is going to be part of this innovative global community we aim to lead? What is that community going to look like in 5, 10, or 50 years? This all depends on decisions we make now.

I am also like Ada in that I have more questions than I do answers. Nevertheless, I think there are two main things we should do to ensure we do not lose the momentum we have built in recent years. First, we need intentional leadership. We need people in Society leadership roles to care about the fact that Black biophysicists are only 2% of our membership. We need them to reflect deeply on this number and investigate why it is so low. And with that information, we must act intentionally. As a community, we must create more spaces and design effective programs and initiatives. We must also engage in more public outreach to school-

age children because we all know the importance of those early science experiences. Waiting until people are in college is already too late. And this brings me to my second point. If we want to increase the participation of Black scientists in biophysics, we need money. We need to invest in Black biophysicists. Allyship in the absence of investment is performative. And the purpose of performance is to entertain, to distract. Nothing will change, nothing will improve, without that investment. I have confidence and trust that current and future Society leadership are not interested in performance. So, let’s invest! Invest in us. You are going to be dazzled by the things we will achieve.

– Theanne N. Griffith.

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