

WHAT CAN PHYSICISTS DO?

An interview series that profiles scientists who opted for careers outside of academia.

Joyful Mdhuli manages astronomy projects that benefit society

By Toni Feder

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BS, physics, University of the Witwatersrand, 2014
PhD, physics, University of the Witwatersrand, 2023

What was your research focus?

For my master's, I characterized properties of diamond after radiation damage. For my PhD, I conducted data analysis for the ALICE experiment at CERN's Large Hadron Collider. [Mdhuli discusses her PhD path in her 2022 *Physics Today* essay, "A journey of joy and uncertainty in physics."]

(Photo courtesy of Joyful Mdhuli.)



How did you make the transition to coordinating projects?

I woke up one day and realized I didn't want to stay in academia. Universities don't tell us what you can do with a physics degree—just that we have so many opportunities. I had volunteered for science fairs and other outreach activities, and I thought I'd like to do community development and make a tangible impact. I just didn't know how to go about it.

I spent six months applying for jobs. I was either overqualified or employers didn't see how I fit in. I reached out to the office where I now work to ask about their project on astronomy for mental health. I had no background in astronomy or mental health, but it sounded cool. They took me because of my experience with data analysis.

How do you spend your time?

In meetings. We try to build collaborations between astronomy and other sectors and look at how to use astronomy to benefit society. I document the work to create a database of astronomy-for-development knowledge and activities.

My main role is to coordinate three flagship projects: astronomy for mental health, astrotourism, and hackathons for development. Additionally, I support our annual open global call for proposals that include astronomy as a component to address a societal challenge.

People have brilliant ideas. We give them seed money. A project in Nigeria uses astronomy to help soon-to-be-released inmates reintegrate into society. Another project provides training to broaden employment options for marginalized students from Central America and the Caribbean.

How does your physics background come into your work?

It's difficult to say there is a direct line from my physics to what I am doing. I use critical thinking. And high-level scientists and people in government are more open to what I have to say because I have a PhD.

What do you like about your job?

I like engaging with new concepts and people from different parts of the world.

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