Q&A

Vinesh Maguire-Rajpaul RAS Norman Lockyer Fellow

On his journey from Cape Town to Oxford and now Cambridge, the exoplanet hunter has also been responsible for disproving a spurious detection. Interview by Paul Johnson.



(Photo: Victoria Maguire-Rajpaul)

How has the three-year Norman Lockyer Fellowship helped you? It's given me exceptional freedom to conduct my own programme of astronomical research. I've focused on developing techniques to detect – via Doppler spectroscopy – smaller exoplanets around a wider variety of stars than was previously possible. The Fellowship has also allowed me to pursue some astronomy education research, for which I'm particularly grateful because I believe that educating and inspiring future generations is as important as doing cutting-edge research today.

What will you do when it ends next year? Emmanuel College will fund me for a year, allowing me to continue my current research at the University of Cambridge. Where I head afterwards depends largely on the solution my partner (a final-year PhD student) and I find to the infamous "two-body problem".

What got you interested in astronomy? As a young child I spent countless evenings on my grandparents' back porch in South Africa, staring, utterly transfixed, at darkening twilight skies. As glittering pinpricks of light appeared, I always had a sense I was witnessing something mysterious and sublime, even if I wasn't sure quite what I was looking at. As night fell, I usually had to be dragged inside. A few years later I was mesmerized by images beamed down by the recently repaired Hubble Space Telescope – serene planets, glorious nebulae, baroque spiral galaxies – and by that point there was no turning back.

How did you end up hunting exoplanets? Of the topics I could have focused on, planets and exoplanets captured my imagination most. When I was in high school, I encountered Voyager 1's "Pale Blue Dot" photograph (Earth from billions of kilometres away) for the first time, and read Carl Sagan's caption. I was moved profoundly, and thought: now this puts everything in perspective! My next thought was: wouldn't it be wonderful if there were an infinity of planets out there? I'm thrilled today to be studying some of these distant worlds.

What's your favourite exoplanet? Proxima Cen b, given its tantalizing proximity to Earth ("only" about 4 light years away). And a least favourite: Kepler-10c, given how much I and others have struggled to reach a consensus about its nature – mass, composition, etc. The verdict is still out.

How close are we to detecting life on an exoplanet? Closer than ever, but it's hard to know just when we'll discover extraterrestrial life, what form it might take, and whether this might be found in our solar system or further afield. I'd be thrilled if such a detection were made during my lifetime.

Who has been the biggest influence on your career? My parents and grandparents, who nurtured my intellectual curiosity, and made many sacrifices so that I could enjoy opportunities they never even imagined during apartheid-era South Africa. On a professional level, Prof. Suzanne Aigrain in Oxford. She's a brilliant scientist and an inspiring person, and I was fortunate to have her as my PhD supervisor.

What is your greatest achievement so far? I'm proud to have won the Rhodes Scholarship that took me to Oxford in 2013, and the Norman Lockyer Fellowship that brought me to Cambridge in 2017. In terms of research, many people associate me with the work I did showing that Alpha Cen Bb – for a while believed to be the closest exoplanet to Earth – was almost certainly a "false positive", though that was just a high-profile application of more general work I've done aiming to improve the way we model and interpret radial velocity time series. All things considered, the joyful daughter my partner and I are raising is surely my greatest achievement.

"I was pleased to help organize a well-attended diversity day at NAM 2019"

What do you do for fun? I'm a passionate photographer and my work has been exhibited many times. Recently though, juggling parenthood and research, I've struggled to make time for photography. I also enjoy playing the piano, getting lost in novels when I should be working, and dancing for hours in techno clubs – especially in Berlin.

As a member of the RAS Committee on Diversity in Astronomy and Geophysics, how is it helping? The CDAG aims to champion diversity, and to support the interests of under-represented groups within the RAS and the broader astronomy and geophysics communities. For example, I was pleased to help organize a well-attended diversity day at NAM 2019, which included an Equality, Diversity and Inclusion parallel session. To take another CDAG member as an example, RAS education, outreach and diversity officer Sheila Kanani does incredible year-round work to advance diversity in our community.

What do you hope for in the next 10 years? I'm looking forward to learning about – and hopefully playing some role in discovering – the first Earth-twin exoplanets! ●

AUTHORS



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