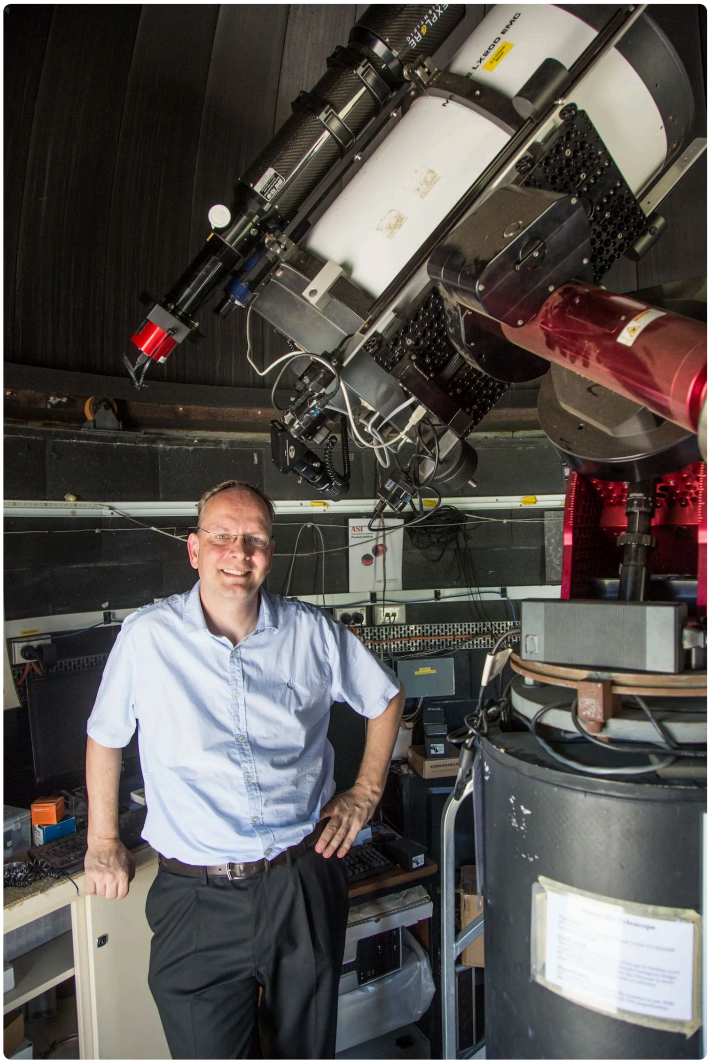


Professor Richard De Grijs

School of Mathematical and Physical Sciences

What are your current research projects?

My research spans astrophysics and the history of science. In astronomy, I study stellar variability, star clusters, asteroseismology and ultraviolet diagnostics of stellar activity. I also remain heavily involved as core team member of the VISTA Survey of the Magellanic Clouds, a long-term sky survey of our nearest neighbour galaxies undertaken with a dedicated 4 metre-class telescope in Chile. I am also investigating publication bias and the development of scientific consensus using large databases of distances in the nearby Universe, primordial helium and deuterium measurements.

Alongside this work, I research the history of science and exploration, including recent work on astronomer Samuel Ward Flinders, a new project on mining engineer John Mackenzie, studies of public engagement with astronomy through nineteenth-century Mars debates, and research into the history of longitude and navigation.

Why are your current projects important?

Although these projects span very different fields, they all explore how knowledge is created, tested and communicated. My astrophysics research helps us understand how stars and galaxies evolve, while my work on publication bias examines how scientific communities arrive at reliable conclusions. My historical research explores how scientific ideas circulated through society, from maritime exploration to public debates about astronomy. Together, these projects help us better understand both the natural world and the processes through which scientific knowledge develops and is disseminated.

Who would you most like to collaborate with?

The best collaborations are those where the combined outcome is greater than the sum of the individual contributions. I have been fortunate to work with outstanding colleagues and bright students from around the world, particularly in China and India, whose expertise has opened exciting new directions in star cluster physics and ultraviolet astronomy. More generally, I am drawn to collaborators who bring different perspectives and challenge assumptions.

What do you like most about your research?

I enjoy discovering connections that are not immediately obvious. Whether I am studying the evolution of stars and star clusters, analysing publication patterns in scientific data or uncovering forgotten stories in historical archives, the most rewarding moments come when seemingly unrelated pieces suddenly fit together and reveal a larger picture. Research is fundamentally driven by curiosity, and I still find that process of exploration enormously satisfying.

What would you be interested in working on in the future?

I am increasingly interested in projects that connect disciplines and communities. In astrophysics, that includes linking stellar population studies, asteroseismology and ultraviolet observations to better understand stellar evolution. In the history of science, I plan to continue exploring the intersections of astronomy, navigation, exploration and public engagement. More broadly, I am interested in research that combines scientific discovery with a deeper understanding of how knowledge is communicated and used in society.

Where is this research taking you?

The more I progress in my career, the more I find myself drawn to big-picture questions. In astrophysics, that means combining complementary approaches such as star-cluster studies, asteroseismology and ultraviolet observations to gain a deeper understanding of stellar evolution. In the history of science, it means uncovering overlooked stories that reveal how scientific knowledge is shaped by people, institutions and society. Ultimately, my research is taking me towards a broader understanding of how knowledge is created, tested and communicated across both science and history.

How did your Macquarie University journey start?

I joined Macquarie University in 2018 as Associate Dean (Global Engagement). That was a three-year appointment on top of a continuing role. When the post was up for renewal, we were in the middle of the COVID pandemic, and so there was no international engagement to speak of. I have since been a senior member of staff, and between July 2023 and June 2026 I held a 25% appointment as Executive Director of the International Space Science Institute–Beijing.

What is a recent discovery that you are excited about?

I am particularly excited by the growing convergence between traditional star-cluster studies and asteroseismology. I recently co-chaired a conference on this subject at the International Space Science Institute–Beijing, an international non-governmental research institution I led as Executive Director for the past three years.

For decades, star clusters have been among our most powerful tools for understanding stellar evolution because all their stars formed at roughly the same time. Asteroseismology now allows us to probe the interiors of individual stars with unprecedented precision. Bringing these approaches together and adding the ultraviolet perspective is revealing new insights into stellar ages, internal structure and evolution that neither method could achieve on its own.

Beyond astronomy, I have also been fascinated by some unexpected findings from my recent research, in-depth on Samuel Ward Flinders. This was particularly facilitated by the award of a Visiting Fellowship at the State Library of New South Wales. What began as a biographical project uncovered a much richer scientific contribution than had previously been recognised, highlighting how important figures can disappear from history despite leaving a significant impact on science and exploration. My book-length biography of Samuel is due out on 8 July.

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