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## **Inferno Worlds**

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## Curriculum Vitae

I was born on the 6th of August 1991 in Christchurch, Canterbury, New Zealand, and grew up in the neighbouring satellite town of Rolleston. In my youth, this area had relatively little light pollution, which may have contributed to my interest in astronomy.

I have always been interested in science, but it was during high school at Hagley Community College when I started to favour physics and astronomy. During my latter years of high school, I became involved with the Canterbury Astronomical Society, where I learned how to use my own small reflecting telescope, used larger amateur telescopes and volunteered at public open nights at the R. F. Joyce Observatory in West Melton.

I started studying physics and astronomy at the University of Canterbury in 2010 where I completed a four-year Bachelor of Science with First Class Honours degree<sup>1</sup> in astronomy. While at the University of Canterbury, I did my bachelor and honours research projects and a summer research project with Professor Peter Cottrell on investigating the chemical evolution of giant stars in globular clusters with multi-object spectroscopic data from the Robert Stobie Spectrograph on the Southern African Large Telescope. During the university summer break of 2010, I worked as a tour guide at the astro-tourism company Earth and Sky Ltd. in the New Zealand town of Lake Tekapo, located in the Aoraki Mackenzie International Dark Sky Reserve. In this role I showed visually appealing astronomical objects to visitors through telescopes, while explaining their significance and physical properties.

I was awarded summer research scholarships at the Australian National University in 2012 and 2013. My first project there was supervised by Dr. Elizabeth Wylie de Boer and involved testing the spectral fitting codes used in the GALactic Archaeology with HERMES (GALAH) project. My second project there was supervised by Dr. Frank Mills and involved benchmarking a photochemistry code that simulated the upper atmosphere of Venus.

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<sup>1</sup>This is a typical Ph.D. preparation programme in New Zealand and Australia, and is similar to the four year integrated masters degree in the UK.

I started my Ph.D. at Leiden Observatory in June 2014 under the guidance of Professors Ignas Snellen and Christoph Keller. During my Ph.D., I have worked on: searching for gas in the exosphere of the hot super Earth, 55 Cancri e (Chapter 2), simulating the dust tail of the disintegrating rocky exoplanet, Kepler-1520 b (Chapters 3 & 4) and searching for gas that was lost from the disintegrating rocky exoplanet, K2-22 b (Chapter 5). During this time, I have presented my research at international conferences in Canada, the United Kingdom, Switzerland, and the Czech Republic.

As of the 26th of November 2018, I will be a post doctoral researcher in the group of Professor Ray Jayawardhana at Cornell University in the United States of America.

## List of publications

- **A. R. Ridden-Harper**, I. A. G. Snellen, C. U. Keller, P. Mollière, *Search for gas from the disintegrating rocky exoplanet K2-22b*, A&A, submitted
- **A. R. Ridden-Harper**, C. U. Keller, M. Min, R. van Lieshout, I. A. G. Snellen, *Chromatic transit light curves of disintegrating rocky planets*, A&A, in press (2018)
- R. van Lieshout, M. Min, C. Dominik, M. Brogi, T. de Graaff, S. Hekker, M. Kama, C. U. Keller, **A. R. Ridden-Harper** and T. I. M. van Werkhoven, *Dusty tails of evaporating exoplanets II. Physical modelling of the KIC 12557548b light curve*, A&A 596, A32 (2016)
- **A. R. Ridden-Harper**, I. A. G. Snellen, C. U. Keller, R. J. de Kok, E. Di Gloria, H. J. Hoeijmakers, M. Brogi, M. Fridlund, B. L. A. Vermeersen and W. van Westrenen, *Search for an exosphere in sodium and calcium in the transmission spectrum of exoplanet 55 Cancri e*, A&A 593, A129 (2016).



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The road leading to the completion of a Ph.D. is sometimes bumpy. However, my journey along this road was made a little less bumpy by some special people, many of whom are mentioned here.

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Next, I would like to thank my parents. You always did whatever you could to help me succeed and encouraged me to follow my dreams, even though they took me to the other side of the world. I am also grateful to my brother, Ryan. Thanks for your support and for always being willing to talk about whatever was on my mind. Good luck with finishing your own Ph.D.!

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