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# Towards The Exo-Earth Era

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## Abstract

In the past few years, the number of planets discovered orbiting other stars has grown dramatically, and newly discovered planets are now announced on an almost daily basis.

In this presentation, I will describe how simulations of the orbital evolution of such planets can help us to better constrain their orbits, and even allow us to identify systems that are not all they seem to be. In addition, in coming years it is likely that the first truly Earth-like exoplanets will be discovered, and I will describe how those same dynamical tools will prove vital in assessing which of those planets are the most promising targets in the search for life beyond the Solar system.

Finally, at the University of Southern Queensland, we are in the process of building MINERVA-Australis - a dedicated Australian Exoplanet Observatory designed to follow-up and characterise Earth-like planets around the brightest stars. MINERVA-Australis will eventually feature six telescopes, all feeding to a single high-quality spectrograph. Capable of taking both spectroscopic and photometric observations, MINERVA-Australis will be a versatile and powerful planet detection and analysis machine.

MINERVA-Australis will be a key facility in the follow-up and analysis of planets discovered in the next wave of Exoplanet discovery, and will see first light in late 2017.