NGTS is under construction at the ESO Paranal observatory in the Atacama desert in Chile, the world’s premier observing site and home to the Very Large Telescopes (VLT) and VISTA.

The array of 12 robotic telescopes will scour the skies looking for subtle dips in starlight caused by planets transiting across the face of their host star. The state of the art system is designed to detect Super-Earths – rocky alien worlds only a little larger than Earth.

These planets are much harder to detect than the so-called ‘Hot Jupiters’ – large gas giants orbiting extremely close to their host stars – that were commonly discovered by NGTS’ predecessor, the SuperWASP survey telescope. They are physically smaller so produce a significantly smaller transit signature. NGTS uses more sensitive detectors, improved optics, and better software, all based on experience with SuperWASP. Tests on the prototype telescope indicate that the design meets all expectations.

NGTS will find planets around bright stars, ideal for detailed follow-up observations to measure their masses and chemical compositions, as well as their atmospheric properties, using telescopes such as the neighbouring VLT. This allows us to distinguish the many classes of planet which are near-identical when assessed on transit measurements alone. Other surveys, such as Kepler, produce targets mostly too faint for this sort of detailed investigation and rely on statistical arguments to ‘confirm’ planet detections.

NGTS will achieve first light in the second half of 2014, keeping Queen’s and partners at the forefront of exoplanet research for the next decade.

Find out more about the work of Queen’s Astrophysics Research Centre at http://star.pst.qub.ac.uk/