

Wide-eyed Telescope finds Transiting Planets

around Distant Stars

Application Note

Belfast, N. Ireland, September 26 2006

Andor Technology has been a central player to some exciting new discoveries in the world of Astronomy. A team of UK, French and Swiss astronomers, including staff from Queen's University Belfast (QUB), has discovered two new Jupiter-sized planets around stars in the constellations of Andromeda and Delphinus

These planets are the first to be found during the UK-led SuperWASP (Wide Angle Search for Planets) programme. Using wide-angle camera lenses, backed by several Andor iKon-L large area CCD cameras (DW436N-BV), each housing a vacuum sealed, TE cooled Back Illuminated CCD sensor with 2048 x 2048 pixels.

The SuperWASP team has been repeatedly surveying several million stars over vast swathes of the sky, looking for the tiny dips in the starlight caused when a planet passes in front of its star. This is known as a transit.

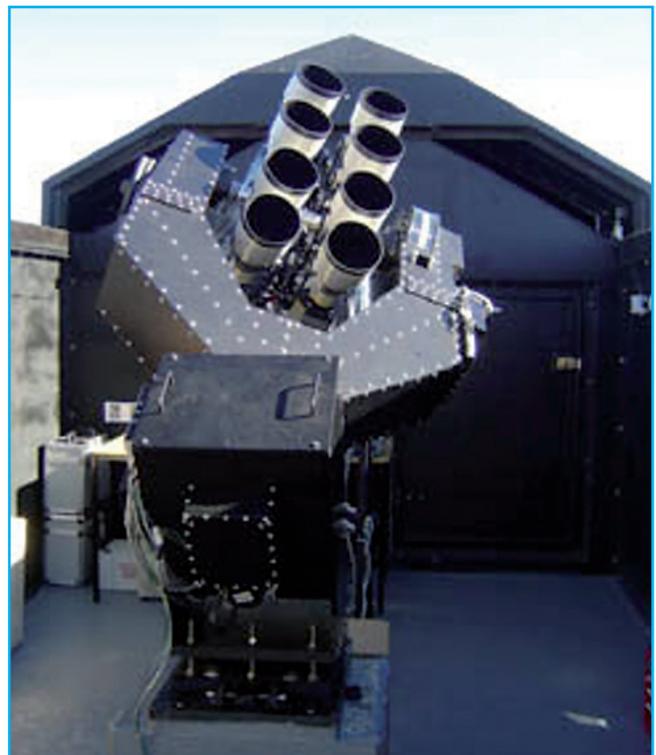
"The system we now have is particularly powerful – we are very happy with our cameras and they enable SuperWASP to find candidate planets and determines their radii" said Dr. Don Pollacco of the School of Mathematics and Physics at QUB, the SuperWASP Project Scientist. Dr Pollacco also leads the SuperWASP team at QUB, which comprises Profs Francis Keenan and Alan Fitzsimmons, and Drs Rachel Street, Damian Christian and Robert Ryans.

"We have worked with Dr. Pollacco and his team over the last few years, developing these cameras. These systems are extremely wide-field – 2000x greater than a conventional telescope. The cameras continuously photograph the night sky, each camera capable of up to 50,000 stars per image" said Andor's Marketing manager, Mark Donaghy.

The planets themselves, known as WASP-1b and WASP-2b, are of a type known as 'hot Jupiters'. They are both giant gas planets, like Jupiter, the largest planet in our solar system, but they are much closer to their parent star.

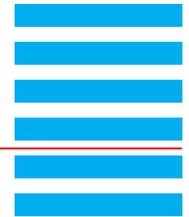
The SuperWASP team are currently planning follow-up observations of the two new planetary systems with the Hubble Space Telescope and the Spitzer Space Telescope in order to measure more accurately the sizes and temperatures of the planets, and also to look for indications of any other planets in these systems.

SuperWASP is expected to find dozens more transiting planets over the next few years.



The SuperWASP planetary transit telescopes:

The SuperWASP (Wide Angle Search for Planets) project operates two camera systems – one in La Palma in the Canary Islands and one at Sutherland Observatory, South Africa. These telescopes have a novel optical design comprising eight scientific cameras, each resembling in operation a household digital camera, and collectively attached to a conventional telescope mount. SuperWASP has a field-of-view some 2000 times greater than a conventional astronomical telescope. The instruments run under robotic control and are housed in their own customised building.



Andor cameras help astronomers identify 3 further planets

Application Note

Belfast, N. Ireland, October 2007

Andor Technology's cameras have helped the UK's leading team of planet hunting astronomers including staff from Queen's University Belfast (QUB), to discover 3 new planets. The new planets were seen to pass in front or transit their host star. When astronomers see a transit, they can work out the size, mass and make up of the planet and they can use the planets to study how solar systems form.

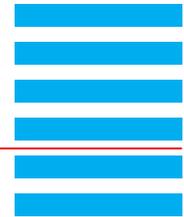
The UK led Super WASP (Wide Angle Search for Planets) Programme uses wide angle lenses with iKon L large area CCD cameras (DW436N-BV), each housing a vacuum sealed, TE cooled E2V 42-40 sensor with 2K x 2K pixels, supplied by Andor Technology in Belfast.

According to Dr. Don Pollacco who leads the Super WASP team at QUB, "The system we have is extremely powerful – we are very happy with our cameras which enable us to find candidate planets. We are the only team to have found transiting planets in the Northern and Southern hemispheres; for the first time we have both Super WASP cameras running, giving complete coverage of the whole sky."

Two of the new planets, WASP 4 and WASP 5 have been the first to be discovered by the WASP cameras in South Africa, the third planet, WASP 3 was in the North, using cameras sited in the Canary Islands.

Said Mark Donaghy, Andor's Head of Marketing "We are delighted that our cameras are playing such an important role in the search for new planets particularly with this recent discovery. We have worked closely with Dr. Pollacco and his team for many years to provide a powerful, reliable solution in the search for new planets."

The 3 new planets are the size of Jupiter and are orbiting their stars very closely, which means that their surface temperatures will be more than 2000 °C. By finding Jupiter-mass planets around other stars, this suggests that there are many Earth-sized planets waiting to be discovered as technology advances.



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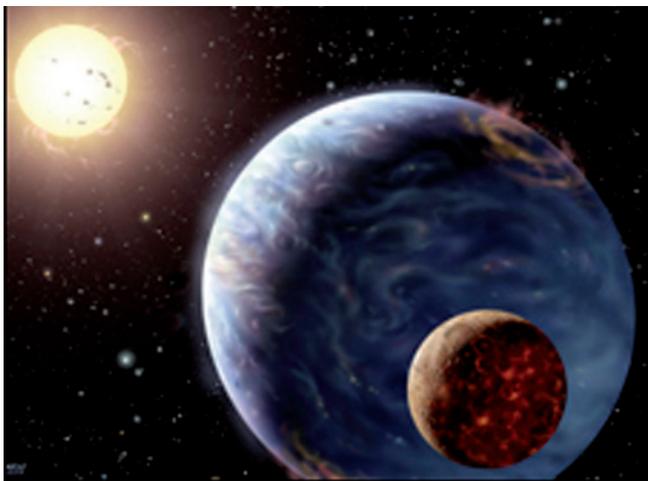
around Distant Stars

Belfast, N. Ireland, April 2008

Astronomers from Queen's University Belfast (QUB) have helped to discover 10 new planets.

The discovery was announced at the Royal Astronomical Society's largest ever National Astronomy Meeting at Queen's.

The extrasolar planets - which orbit around other stars - were found by an international team using cameras in the Canary Islands and South Africa.



The Queen's astronomers are using cameras designed and manufactured by Belfast company Andor Technology.

The Wide Area Search for Planets (SuperWasp) project uses two sets of cameras to watch for events known as transits, in which a planet passes directly in front of a star and blocks out some of its light, so from the Earth, the star temporarily appears a little fainter.

The cameras work as robots, surveying a large area of the sky at once.

Each night, astronomers have data from millions of stars which they check for transits. The transit method also allows scientists to deduce the size and mass of each planet.

Forty-five planets have now been discovered using the transit method, and since they were set up in 2004, the SuperWasp cameras have found 15 of them - making them the most successful discovery instruments for this type of work in the world.

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Announcing the results was QUB's Dr Don Pollacco.

Speaking before the meeting, he said: „SuperWasp is now a planet-finding production line and will revolutionise the detection of large planets and our understanding of how they were formed.

„It's a great triumph for European astronomers.

„Queen's and the Particle Physics and Astronomy Research Council funded the first SuperWasp on La Palma; the camera was designed and built at Queen's.“

Among the planets discovered using SuperWasp are WASP-12B.

A year - its orbital period - on WASP-12B is just 1.1 days. The planet is so close to its star that its daytime temperature could reach a searing 2,300C.

Scientists have found more than 270 extrasolar planets since the first one was discovered in the early 1990s, but the pace of discovery has been accelerated by SuperWasp technology.

The Particle Physics and Astronomy Research Council has changed its name to the Science and Technology



The cameras were designed by Andor Technology

Facilities Council. It is the main astronomy funding body in the UK.