Haul of 50 oscillating stars with orbiting planets found by Kepler Spacecraft

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(PhysOrg.com) -- Oscillations have been discovered in 50 stars with their own orbiting candidate planets (exo- or extrasolar planets) by an international team of scientists using data from the NASA Kepler Mission, according to an announcement made by one of the lead scientists, Professor Bill Chaplin from the UK's University of Birmingham, at a NASA conference in California (Friday 9th December, 2011).

Extrasolar planets or exoplanets are planets that are located outside our solar system. The Kepler spacecraft is monitoring the brightness of more than 150,000 stars in the Cygnus-Lyrae constellations of our galaxy, the Milky Way. Its data are being used to search for exoplanets and also to monitor the natural oscillations of stars, the field of asteroseismology.

The oscillations lead to miniscule changes or pulses in brightness, and are caused by sound trapped inside the stars which makes the stars "ring" or vibrate like musical instruments. By analysing the oscillations, scientists can measure the properties of the stars very accurately and probe their interiors.

As a result of analysing data from Kepler the team has found 50 oscillating stars that are orbited by candidate exoplanets. Results from asteroseismic measurement of the properties of these stars gives data of unprecedented quality for constraining the sizes and ages of the candidate exoplanets and whether they might lie in the Goldilocks or habitable zones of the stars - not too hot or too cold, but just right - and

therefore considered favourable to host life.

Professor Bill Chaplin from the University of Birmingham's School of Physics and Astronomy, who co-led the work, said, "With exquisite data on 50 stars asteroseismology is making a significant contribution to the exoplanet discoveries. We have accurate enough data on a big enough sample of stars to really help statistical studies aimed at understanding how planetary systems form and evolve around other stars, and how common or unusual our own solar system might be."

Provided by University of Birmingham