

Search for Other Solar Systems - the Latest Findings in the Study of Exoplanets

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Whether extraterrestrial life forms exist or not has always been an intriguing issue for scientists and the general public. One way to explore this issue is to search for exoplanets. Early methodology in the 90's was to detect Doppler shifts of stellar spectral lines which indicates the periodic motion of the star caused by the gravitational pull of surrounding planets. The detecting mechanism has been developed to such a precise level that even a motion of 1 m/sec, which is the speed of a person walking normally, can be seen. Later when Kepler mission was launched in 2009, the major discovering mechanism has become planet occultation. As of today, there are 4234 planet candidates among which 978 are confirmed planets. In addition, there are a number of multiple planet systems which renders our solar system extremely ordinary. Combining other observing instruments, scientists are able to study the chemical composition of selected planetary atmosphere, leading to further understanding of alien environment on exoplanets. The research results of Kepler mission are so fruitful considering the fact that the target area focused so far is only 1/400 of the entire sky with limited sensitivity and time. The study of unfamiliar life forms in extreme environment on earth has also grown to an important research field complementary to the study of planets out in the cosmos. The future of astrobiology is so bright that I have to wear my sunglasses.