

Perspective

The Search for Earth 2.0

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Astronomy – with the start of Hubble Space Telescope the fierce hunt for planets which revolve round other suns began in 1990 in outer space. A new generation in cosmos based planet hunting telescope now stands in the starting pit. With that the old guards are not at all worn out and still cause a stir. First in the middle of the last week of September 2019 NASA reported; with the help of data of Hubble Space Telescope, the researcher of London succeeded to determine that there is exoplanet unique known K2-18b in the class of super earths. It contained in its atmosphere water (alongwith hydrogen and helium) and there prevails temperature similar as in the earth. Hubble will be discharged in 2021 through the James Webb Space Telescope (JWST).

It is backed by the Kepler space Telescope. It stands at the beginning of the exoplanet search and the NASA shot it particularly for that in the universe. 2662 of the officially recognized 4062 exoplanets were discovered between 2009 and 2018. In the same year it was discharged through NASA – Instrument Tess. The ESA is short before the start of Cheops (Characterizing Exoplanet Satellites). The start was planned in the fourth quarter of the year 2019.

By the side of here presented eight instruments there were still others to mention. The infrared telescope Spitzer was brought in the universe, still functions till the beginning of 2020 and is also by the JWST replaced. The French-European Corot Mission discovered 31 exoplanets between 2006 and 2013. The sky scan of 2013 started

space probe GALA of ESA should run upto 2022. One expects from that the discovery of thousands of exoplanets.

1990

Hubble Space Telescope – (Always good for a surprise)

In 1990 NASA and ESA launched space telescope are the oldies for the extraterrestrial planet research. Its 2.4 metre reflector can observe in the sphere from visible infrared upto ultraviolet light. It makes much more than discovery of only exoplanets such as galaxies, black holes, dark matter, stars, and cloud-hubble are the Swiss knife of astronomist in the cosmos. The researchers discovered exoplanets only very little –the NASA lists total six but subsequently its observations often deliver important information.

Kepler / K2 2009

In 2009 NASA shot the Kepler space telescope in cosmos, equipped with the mandate to search for the exoplanets. Before all smaller say similar to earth with the 1.4m with folded beams of light should have been found out.

In January 2010 NASA announced the first five Kepler discovered planets. Upto the end of mission (October 2018) it should have been 2662. In 2013 the mission had to be adjusted and Kepler was brought to a new position, as it was no more to be rightly carried out since then the mission went on under the K2.

Tess 2018

The transiting exoplanet Survey Satellite (Tess) is at it were the short follow-up programme

of NASA to Kepler. In 2018 sent in cosmos, it should scan about 85% of the sky in two years with wide angle cameras.

Special point of view: The brightest earth proximity stars with the transit method to sweep the sky for the exoplanets. The NASA expects more than 20006. The Tess data should then with the JWST or earth base telescopes further improved.

Cheops 2019

Most Latest Mission

In the year 2019, ESA wanted to send the research instrument Cheops (Characterizing Exoplanets Satellite) for three and a half years in cosmos. The centre for space and habitability of the university Bern is leading with 50 million € project. The 1.5 m telescope should before all revolve round the Radian of exoplanets which are as heavy as one to six times of earth mass and bright stars and survey exactly to 10%. These research objects were already through other telescope discovered. Also Cheops should lay the basis for further researches so with JWST.

So with the JWST,

James Webb Space Telescope (JWST) 2021 Changing of the guard

In March 2021 NASA wants to launch the James Webb Space Telescope (JWST) as follower of Hubble and the Spitzer Space Telescope. The joint project of the space agents NASA , ESA and the Canadian CSA focus as the Spitzer Telescope, however, on infrared (IR). With infrared the objects in extreme distances get better investigated.

The main mirror made of beryllium measures 6.5 m in diameter and consists of 18 hexagonal segments which first in space should unfold. As Hubble focuses the JWST, not only on the exoplanets but also supports wide astronomical research: on very old bang (explosion) galaxies and origin of stars.

Plato VI 2026

Twin searcher

The ESA space telescope (Planetary Transits and Oscillations of stars) should not be a smaller

concern (undertaking) than to find earth 2.0. After their for 2026 planned start Plato should in 6 years with 26 small wide angled telescope search for almost the half of the sky and so also search several 100000 stars as earth like planets. Man wants to focus on those ones among them which in the same gap revolve round their stars where water could exist in fluid form. The cameras reach the individual for the brightest stars and for the fainters we could connect together the cameras” says Heike Raner, Director of DLR Institution for Planet Research and since 2013 leader of Plato consortium.

Starshade beyond 2030

What NASA in 2030 and beyond with starshade Mission to be engaged in, is gigantic: A screen with a diameter of 50m should be shot in the universe. When it has unfolded itself, a space telescope can shoot picture through a hole in the middle of the exoplanets and therefore for the first time a picture of a second earth. The Starshade put out the light of the stars around which the exoplanet revolves. That should render possible more exact analyses of planet atmosphere. The challenge: Starshade flies upto 70000 km in front of the telescope and the distance must be maintained for the constant observation.

Laser Interferometer Space Antenna (Lisa) 2034 Einstein’s Legacy in Universe

The laser-interferometer Lisa is not primarily an exoplanet mission, it should measure the gravitation waves. At this the in 2034 planned ESA mission will be all spectacular. Three satellites earth follow the on its solar orbit and with that a simultaneous triangle stretches out with 2.5 mio km edge length.

The satellites measure continuously as the distance between one another changes and uses for that Laser. The Lisa could exactly then find the planets, when they play false gravitation wave signal revolving white dwarfs.

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