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Exoplanets – What's next?

In the last decades missions such as Corot and Kepler detected new classes of planets, such as “super-Earths” and “mini-Neptunes”, which are not found in our Solar System. They showed that small planets are more numerous than gas giants. But with increasing planet detections, also new questions arose such as: What is the composition and internal structure of these planets? What are their atmospheres made of? How did these planetary systems form? And for the smallest planets: are they potentially habitable and how could we detect this? The next decades will provide a number of space- (and ground-)based projects which will provide us further insights into the field of exo-planetary research. The K2-Mission (NASA), ESA's Small Mission CHEOPS and NASA's mission TESS operate this decade and will detect close-in targets that can be then further investigated by the JWST. Following these missions, the PLATO 2.0 mission (ESA M3 mission, launch 2024), will revolutionize our understanding of extra-solar planets by discovering and characterizing planets for their radius, mass and age, including planets in the habitable zone of solar-like stars. This talk will provide an overview of the status and future of extrasolar planet detections, with emphasize on past and future transit missions.