Seminarium Astrofizyczne

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Exoplanets in the golden age of large photometric surveys

In the last two decades, more than 5000 exoplanets have been discovered and characterized using spectroscopic and photometric observations. More than 75% exoplanets have been found using light curves of the stars and the transit method, and an enormous contribution to this research area come from pioneering space photometric surveys like Corot, Kepler, and, in the recent years, TESS and CHEOPS. Even if physical and orbital characteristics of these planets are often well constrained, there is a property of these objects that, in the large part of the cases, suffers from large uncertainties: the age. The accurate knowledge of the ages of stars hosting planets allows us to obtain an overview on the evolution of exoplanets and understand the mechanisms affecting their life. Reliable measurements of the ages of stars in the Galaxy can be obtained only in rare cases. The members of stellar clusters and associations are an exception: for these stars, born at the same epoch, located at the same distance, and characterized by the same chemical properties, the age can be measured with extreme accuracy, by using different approaches. In this seminar I will review the most important results achieved in the last years with large photometric surveys, with a look at the future ESA mission PLATO, and I will talk about the importance of measuring the age of the stars hosting planets in order to understand the mechanisms of formation and evolution of the planetary systems

Serdecznie zapraszam,

Agnieszka Majczyna