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Did Giant planets stated forming late in the Milky way?

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"In this study, we examine the kinematic and chemical features of the largest number of 2627 exoplanets harbouring stars whose parameters have been uniformly determined. We combine photometric, astrometric, and spectroscopic data from the most recent Gaia DR3 to examine the various populations of exoplanets harbouring stars. Using spectroscopic data, we determined that stars hosting massive planets are metal-rich and α-poor in comparison to stars hosting small planets. Kinematic analysis reveals that the host stars of small planets and giant planets differ in all aspects of galactic space velocity and orbital parameters. In addition, we find that small planet hosting stars have a marginally higher eccentricity and Z_{max} (an indication of an older population) than their larger counterparts. Our spectroscopic and kinematic studies suggest that the small and giant planetary systems likely belong to population of stars with different ages, giants being younger than the small ones. Using the PARSEC isochrone grids and isochrone fitting methods, we also estimated the ages of stars bearing exoplanets. All together, three analyses show that gas giants may have stared forming after the interstellar medium was enriched by Type Ia supernovae, which occurred late in the history of Milky Way. At the same time, a large spread seen in various age indicators of small planet hosting stars implies that they formed throughout the GCE. Despite the fact that several previous studies hinted at similar conclusions, they were not robust because to smaller sample sizes and/or inhomogeneous stellar parameter estimations. Due to the fact that our investigation was conducted on the largest sample of stars that host exoplanets, our results are currently the most credible.
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