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## Long period radial velocity giant planets

*mercredi 23 mars 2022 15:20 (10 minutes)*

Since the first detection of extrasolar planet around Main Sequence star in 1995, about 1000 exoplanets have been detected thanks to the radial velocity (RV) method. Thanks to the increasing monitoring time up to 30 years long-period giant planet with orbital properties close to the giant planets of the solar system can now be, in principle, detected, and recent studies have determined the radial distribution of giant planets from a few tenths to more than 10 au, with the goal of constraining planet formation processes. Based on the detections in the CORALIE-HARPS (resp. Keck-HIRES, APF-Levy and LICK-Hamilton) survey and an estimate of the survey completeness, the studies of the radial distribution of Fernandes et al. 2019 and Fulton et al. 2021 showed a peak of the occurrence rate around 3 au, close to the snow line around solar-like stars, and a decrease in the number of giant planets by star beyond. Those variations could therefore be in agreement with the most accepted formation model for the solar system giant planets.

We re-analysed the longest period planets identified in the two surveys. The orbital properties of the planets with semi major axis larger than 5-7 au appear to be poorly constrained due to insufficient monitoring, poor temporal sampling (or a combination of both effects) combined with unknowns on the star's properties.

Additional RV measurements and the use of other detection techniques are needed to constrain the radial distribution of the giant planets beyond the snow line and to interpreted those radial distributions.

### Field

Planetology (including small bodies and exoplanets)

### Day constaints

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