

Characterizing of long-period exoplanets with radial velocities and present and future high-precision astrometry

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The study of complex systems with long-period companions is currently at the forefront of the observational efforts in the study of extrasolar planets. Both radial velocities (RV) and astrometry can provide valuable information on such systems, but they both suffer from inherent limitations. We present several recent results that prove how the combination of these two techniques can overcome these limitations, both in the context of recent and upcoming Gaia data releases, and of future high-precision astrometric missions such as GaiaNIR. We present the combination of RV measurements from HARPS-N and Gaia astrometry, to study in great details the long-period companions orbiting a sample of stars with known RV detected systems. We show how the combination of RV information with proper-motion anomalies from GaiaDR3 and Hipparcos can measure the inclination and real masses of several long-period companions in our sample. We also present a set of realistic simulations of Gaia and GaiaNIR astrometric time series, to quantify the great boost in precision that the combination of these well-spaced datasets will bring to the study of long-period exoplanetary companions.

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