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Title: Measurement of Stellar Rotation of Exoplanet Host Stars from Kepler Mission Photometry: Scarcity of Short Period Planets around Fast Rotators
Type: Poster
Session: Exoplanet Statistics, False Positives, and Completeness Corrections
Abstract: We detect stellar rotation periods in 737 of the main sequence exoplanet host stars, and compare these to the orbital period of the closest detected planet in each system (McQuillan, Mazeh & Aigrain, 2013, ApJL). The spin-orbit distribution reveals a striking lack of close-in planets around fast rotators. It appears that only slowly spinning stars, with rotation periods longer than 5–10 days, host planets on orbits shorter than 2 or 3 days. This feature, if confirmed, can shed some light on the star-planet interaction during the formation and evolution of such systems.