

P319a **Investigating stellar jitter with asteroseismic observations in searching for exoplanets around G/K-type evolved stars**

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A lack of close-in and less-massive planets, and rare multiplicities appeared since exoplanet surveys among intermediate-mass (IM) stars have been carried out for nearly 20 years. However, radial velocity (RV) variation of the host stars driven by these close-in, less-massive planets, and very-long-period planets are quite small, which are comparable to the stellar jitter (e.g. oscillation and granulation) of evolved IM stars. Therefore, monitoring the stellar jitter appears to be particularly important observationally.

In this research, we estimated the potential of underlying exoplanets around G/K type evolved stars (planet hosts) by monitoring stellar jitter. We selected several planet hosts from Okayama Planet Search Program with asteroseismic observations operated with HIDES at OAO and SONG, and we applied two methods to the RV data: (1) Synthetic data generation from velocity power spectrum density (VPSD); (2) Gaussian Process (GP) predictions on the stellar oscillation with precise HIDES asteroseismic observations. The scatters of the synthetic data or predictions were treated as stellar jitter in planet searching oriented RV series. We finally fixed these jitters in Keplerian orbit fitting, if there were still large scatters in the RV residuals, it might suggest underlying exoplanets orbiting the host stars.