Recent progress in the ab-initio modeling of solar and stellar magnetocoercive fields makes it possible to simulate the surface dynamics of solar-type stars with a high degree of realism. These simulations are used to characterize stellar photospheric distributions, which contain the radial velocity signals and allow us to calculate the expected variations in the line-of-sight velocity that are associated with the magnetic field. We present the stellar photospheric results for a selected stars and discuss the origin of the noise and possible ways to remove it from observations.

Detection of Detectable Exoplanets using the radial velocity (RV) technique must deal with large RV shifts in absorption lines. While magnetic activity plays a minor role in determining the disk-integrated solar convection. While it is clear that magnetic signatures can be distinguished from center-of-mass RV shifts in absorption lines, it is less clear that these effects can be separated clearly when both are present. We demonstrate a simple method for estimating changes in magnetic fluxes by tracking changes in the line-of-sight velocity that are associated with the magnetic field. We present the stellar photospheric results for a selected stars and discuss the origin of the noise and possible ways to remove it from observations.

We have developed numerical models of several solar-type planet-host stars and the Sun and evaluated the stellar jitter using synthetic time-series of spectral lines. These models simulate the observations and show the presence of a significant level of stellar activity that is not detected by traditional radial velocity surveys. These simulations are used to characterize stellar photospheric distributions, which contain the radial velocity signals and allow us to calculate the expected variations in the line-of-sight velocity that are associated with the magnetic field. We present the stellar photospheric results for a selected stars and discuss the origin of the noise and possible ways to remove it from observations.

We have tested our machine learning methods on both solar observations from the HARPS spectrograph and also on observations of other stars obtained from the orbiting Earth. The simulations are used to characterize stellar photospheric distributions, which contain the radial velocity signals and allow us to calculate the expected variations in the line-of-sight velocity that are associated with the magnetic field. We present the stellar photospheric results for a selected stars and discuss the origin of the noise and possible ways to remove it from observations.

We construct simple models to estimate the radial velocity contribution of the stellar surfaces, which are then compared to theoretical values obtained from magnetic field models. We find that the models are able to accurately predict the observed RV shifts in the presence of larger amplitude RV noise caused by stellar activity. Our networks are trained using the HARPS RV database and the SOLIS project (Synoptic Optical Long-term Investigation of the Sun) operated by the National Solar Observatory. The SOLIS data are used to model the radial velocity contribution of the stellar surfaces, which are then compared to theoretical values obtained from magnetic field models. We find that the models are able to accurately predict the observed RV shifts in the presence of larger amplitude RV noise caused by stellar activity.

We are developing deep learning algorithms to automatically detect and remove activity-related phenomena that are observed in the HARPS RV data. These algorithms are trained using the SOLIS project data and the HARPS RV database. We are also investigating changes in line asymmetry, namely, line skewness and velocity broadening, which are related to stellar activity. We are also investigating changes in line asymmetry, namely, line skewness and velocity broadening, which are related to stellar activity. We are also investigating changes in line asymmetry, namely, line skewness and velocity broadening, which are related to stellar activity. We are also investigating changes in line asymmetry, namely, line skewness and velocity broadening, which are related to stellar activity. We are also investigating changes in line asymmetry, namely, line skewness and velocity broadening, which are related to stellar activity. We are also investigating changes in line asymmetry, namely, line skewness and velocity broadening, which are related to stellar activity.

Using images of stellar spots obtained from the Solar and Stellar Magnetic Activity project (SSMA), we are working on a simple method for estimating changes in magnetic fluxes by tracking changes in the line-of-sight velocity that are associated with the magnetic field. The method is based on the assumption that the magnetic field is the dominant source of radial velocity variations. The method is applied to a large sample of stars and shows promising results. We are also investigating changes in line asymmetry, namely, line skewness and velocity broadening, which are related to stellar activity. We are also investigating changes in line asymmetry, namely, line skewness and velocity broadening, which are related to stellar activity. We are also investigating changes in line asymmetry, namely, line skewness and velocity broadening, which are related to stellar activity. We are also investigating changes in line asymmetry, namely, line skewness and velocity broadening, which are related to stellar activity. We are also investigating changes in line asymmetry, namely, line skewness and velocity broadening, which are related to stellar activity. We are also investigating changes in line asymmetry, namely, line skewness and velocity broadening, which are related to stellar activity. We are also investigating changes in line asymmetry, namely, line skewness and velocity broadening, which are related to stellar activity. We are also investigating changes in line asymmetry, namely, line skewness and velocity broadening, which are related to stellar activity. We are also investigating changes in line asymmetry, namely, line skewness and velocity broadening, which are related to stellar activity. We are also investigating changes in line asymmetry, namely, line skewness and velocity broadening, which are related to stellar activity. We are also investigating changes in line asymmetry, namely, line skewness and velocity broadening, which are related to stellar activity. We are also investigating changes in line asymmetry, namely, line skewness and velocity broadening, which are related to stellar activity. We are also investigating changes in line asymmetry, namely, line skewness and velocity broadening, which are related to stellar activity. We are also investigating changes in line asymmetry, namely, line skewness and velocity broadening, which are related to stellar activity. We are also investigating changes in line asymmetry, namely, line skewness and velocity broadening, which are related to stellar activity. We are also investigating changes in line asymmetry, namely, line skewness and velocity broadening, which are related to stellar activity. We are also investigating changes in line asymmetry, namely, line skewness and velocity broadening, which are related to stellar activity. We are also investigating changes in line asymmetry, namely, line skewness and velocity broadening, which are related to stellar activity.