Disentangling stellar activity from exoplanetary signals with interferometry

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Abstract

Stellar activity can express as many forms at stellar surfaces: dark spots, convective cells, bright plages. Particularly, dark spots and bright plages add noise on photometric data or radial velocity measurements aimed at detecting exoplanets, and thus lead to false detection or disrupt their derived parameters. Since interferometry provides a very high angular resolution, it may constitute an interesting solution to disentangle between a transiting exoplanet's signature and stellar activity's one. It has also been shown that granulation adds bias in visibility and closure phase measurements, affecting in turn the derived stellar parameters. We analyze the noises generated by dark spots and granulation on interferometric observables and compare them to exoplanets' ones. We investigate the current interferometric instruments able to measure and disentangle these signals, and show that there is a lack in spatial resolution. We thus give a prospective of the improvements to be brought on future interferometers, which would also significantly extend the number of available targets.

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