

STUDYING ACTIVITY CYCLES WITH KEPLER: THE STORY OF STELLAR DYNAMOS

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Magnetic activity cycles comprise a fundamental parameter for testing and understanding magnetic activity, stellar dynamos and space weather around stars. Especially at a time where planetary searches reach their zenith, the understanding of long-term variations in stellar atmospheres weigh heavily in the long-term stability of stellar habitable zones and the preservation of biosignatures on the atmospheres of extrasolar earths. Our proposed Kepler observations aim at exploring long-term (multi-annual) variations in the stellar activity characteristics of K/M dwarfs in the Kepler field. Specifically, for the stars in our sample we will derive correlations between rotation, active region growth and decay, flare rate, flip-flop evolution activity cycles and stellar mass, using long-term Kepler light curves. In turn, this will provide fundamental input parameters for the study of stellar dynamos and the determination of the magnetic field action in stars with deep convection zones.