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# Dynamic young stars and their disks: a temporal view with CoRoT and Spitzer

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## Abstract

Variability is a signature feature of young stars. Among the well known light curve phenomena are periodic variations attributed to surface spots and irregular changes associated with accretion or circumstellar disk material. While decades of photometric monitoring have provided a framework for classifying young star variability, we still know surprisingly little about its underlying mechanisms and connections to the surrounding disks. In the past few years, dedicated photometric monitoring campaigns from the ground and space have revolutionized our view of young stars in the time domain. We present a selection of optical and infrared time series from several recent campaigns, highlighting the Coordinated Synoptic Investigation of NGC 2264 ("CSI 2264") – a joint 30-day effort with the Spitzer, CoRoT, and MOST telescopes. The extraordinary photometric precision, high cadence, and long time baseline of these observations is now enabling correlation of variability properties at very different wavelengths, corresponding to locations from the stellar surface to the inner 0.1 AU of the disk. We present some results of the CSI 2264 program, including new classes of optical/infrared behavior, as well as light curves that defy explanation. Further efforts to tie observed variability features to physical models will provide insights into the inner disk environment at a time when planet formation may be underway.

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