We expand SATIRE (Spectral And Total Irradiance Reconstruction, [1]) model of solar irradiance variability from the Sun to stars with different activity levels, surface distributions of magnetic features, and inclinations.

Figure 1. • Simulated: light curves of the Sun as they would be observed by Kepler;
• solar brightness variations “measured” by Kepler from a near ecliptic plane are essentially driven by spots (Figs. 1a-b);
• the variations observed at low inclinations are driven by faculae (Figs. 1c-d).

Figure 2. • Reproduced the observed trend: while the variability of Sun-like stars with low magnetic activity is faculae-dominated, the variability of Sun-like stars with high magnetic activity is spot-dominated;
• the switch between the regimes: at activity levels slightly larger than solar (Fig. 2a);
• the measured photometric variabilities of the high activity stars agree with calculations reasonably well (Fig. 2b);
• the modelled variabilities of the low activity stars are smaller than given by the empirical correlation.

Figure 3. • Compensation of the spot and facular contributions to the variability in Strömgren b and y filters leads to the low photometric variability of the Sun and stars with near solar level of activity (Fig. 3);
• such a compensation might not occur for stars with effective temperatures and metallicities different from those of the Sun.

References: