



A study of variability of the Am Kepler star KIC 9204718

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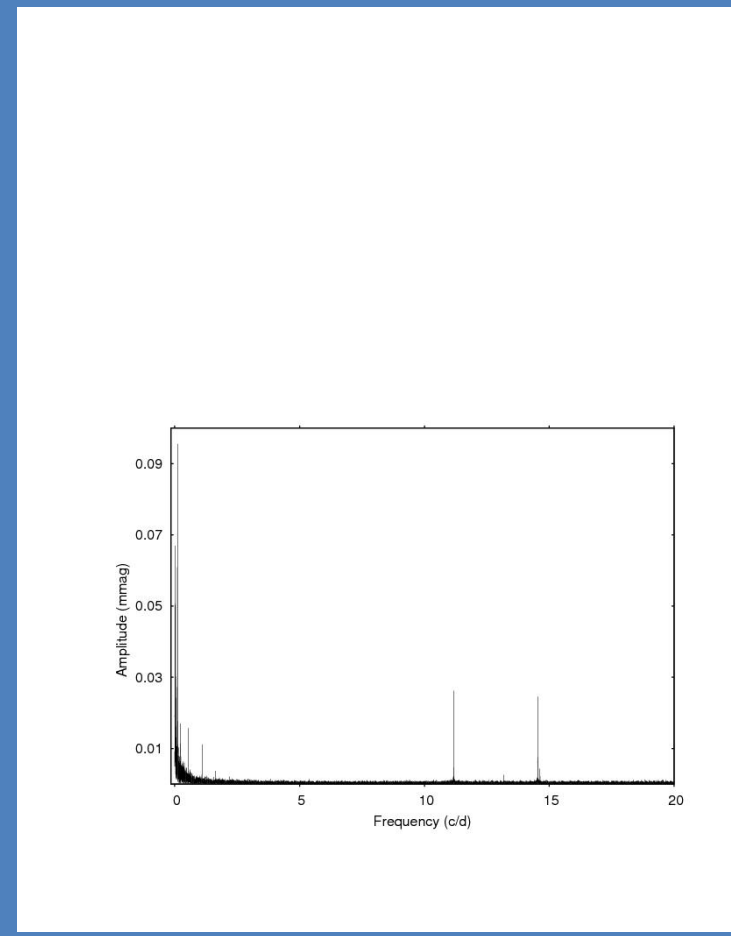
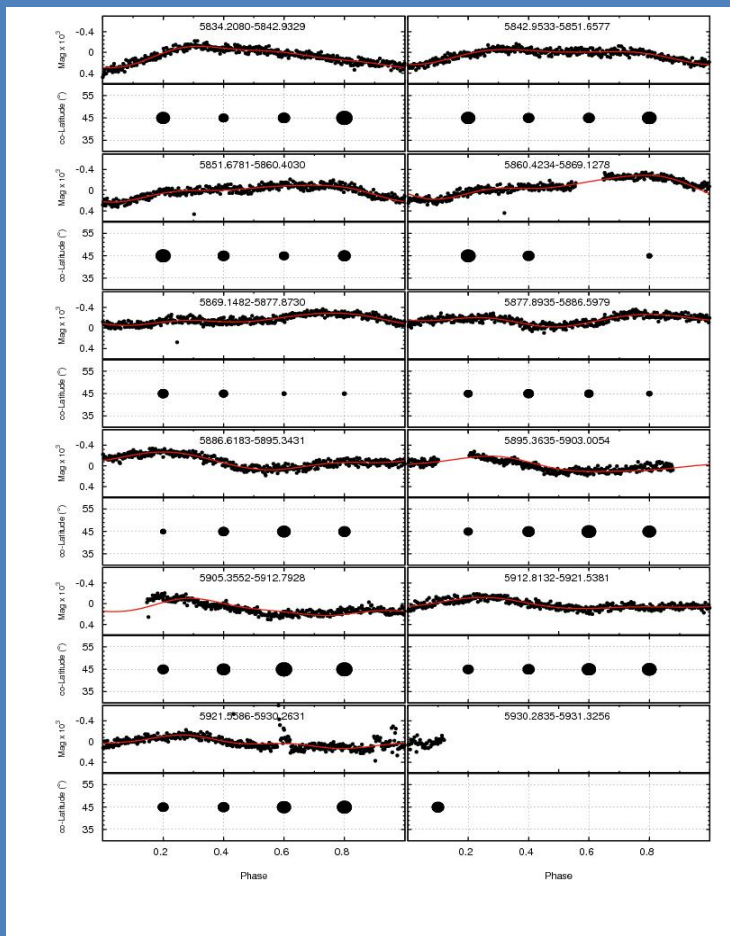
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- KIC 9204718 = HD176843
- A3mF0
- first clasified as an Am star by Floquet(1975)
- a marginal Am star showing δ Sct pulsations within a possible contact binary system (Uytterhoeven et al.,2011)

Photometry

- Kepler photometry
- LC time series by using cotrending basis vector (CBV) files (Christiansen et al., 2012)
- SAP fluxes by means of the kepcotrend task of PyKE package
- SigSpec (Reegen, 2007) package to extract the frequency content
- LC curve is dominated by three peaks with frequencies 0.11445, 0.0162 and 0.1078 d⁻¹



Spectroscopy

- ESPERO-fiber-fed echelle spectrograph attached to the 2-m RCC telescope of NAO Rozhen
- wavelength range 4000 to 9400 Å and a resolving power of about 35 000
- mean S/N ratio was about 50 around 6500 Å
- 18 spectra have been obtained, most June and September 2016
- IRAF standard procedures
- RVs - fxcor / IRAF

Table2. Radial velocity asurements

Date	HJD245+	RV [km/s]	RVerr[[km/s]
21.07.2016	7591.44155	-14.72	±2.54
22.07.2016	7592.40175	-14.76	±1.77
22.07.2016	7592.44421	-14.82	±2.35
23.07.2016	7593.44898	-14.69	±2.14
23.07.2016	7593.49145	-14.74	±2.27
16.08.2016	7617.40795	-16.09	±2.43
17.08.2016	7618.41679	-15.92	±2.19
20.08.2016	7621.36269	-16.26	±2.64
15.09.2016	7647.48922	-19.29	±2.39
15.09.2016	7647.51099	-19.18	±2.71
16.09.2016	7648.32971	-19.33	±2.42
16.09.2016	7648.35104	-19.22	±2.13
17.09.2016	7649.38379	-19.45	±2.10
17.09.2016	7649.40526	-19.75	±2.48
12.07.2017	7947.44836	-26.25	±2.85
12.07.2017	7947.47042	-26.22	±2.81
29.11.2017	8087.20700	- 25.37	±4.08
07.03.2018	8185.50199	-24.76	±3.95

RV standards:

HD 173398

our spectra:

RV= -25.12 ± 0.76 km/s

catalogue: Soubiran et al. (2013)

RV= -25.119 ± 0.0125 km/s

HD 142639:

our spectra:

RV= 9.8 ± 0.51 km/s

catalogue: Famaey et al.(2005)

RV= 9.19 ± 0.21 km/s

Conclusion:

- the light curve is dominated by three modes with frequencies $f_1 = 0.1145$, $f_2 = 0.0162$ and $f_3 = 0.1078 \text{ d}^{-1}$
- Spectroscopic data clearly show radial velocity variations interpreted as a sign of binarity effect but could not be attributed to the orbital period of 8.^d7736
- we assumed the cool spotted areas would be the reason for the variations