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DISCOVERY OF A NEW PULSATING STAR: SAO 29875

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Name of the object:	
SAO 29875, HD 238549, BD+56 1883	
Equatorial coordinates:	Equinox:
R.A.= 16 ^h 17 ^m 36 ^s .7 DEC.= +56°14'19".9	2000
Observatory and telescope:	
Mt. Suhora Observatory, 60 cm Cassegrain telescope	
Detector:	photometer: three channel, Hamamatsu R1463P PMTs
Filter(s):	BVR
Date(s) of the observation(s):	
2005.03.20/21, 2005.03.21/22, 2005.04.02/3	
Comparison star(s):	PG1618+563 used in March, anonymous star in April
Check star(s):	none
Transformed to a standard system:	No
Availability of the data:	
Available at the IBVS website as 5639-t1.txt	
Type of variability:	λ Boo/ δ Sct

Remarks:

We report discovery of pulsations of SAO 29875 ($V=9^m8$, A0 spectral type listed in the HD catalogue). In Fig. 1 we show the collected light curves in all filters. Variability with an amplitude of about 0^m05 in B filter is clearly seen in the data collected in March. Although the April data have been gathered in non-photometric conditions, the light changes are obvious in all filters. SAO 29875 seems to have more than one periodicity as the observations taken during the first night show an increase of amplitude of pulsations towards the end of the run. We performed a Fourier analysis in order to search for periodicities. Deeming's (1975) algorithm modified by Kurtz (1985) was applied. In Fig. 2 we present the periodogram for all available data taken in the B filter. Using the FOUR-M code (Andronov 1994), the value of the dominant period has been found: $P=0.063656\pm0.000003$ d. This dominant period is well seen every night. A longer-period peak of 0.315 d may have arisen as an artefact corresponding to the lengths of the runs (about 8 hours each night).

The period and semi-amplitude properties of SAO 29875 may indicate either a δ Sct-type or λ Boo-type pulsations. The A0 early spectral type may give a hint that SAO 29875 is a new λ Boo-type pulsator. The final classification can be made after deriving the metal abundances of this star (Gray 1988, Paunzen 2005).

Acknowledgements:

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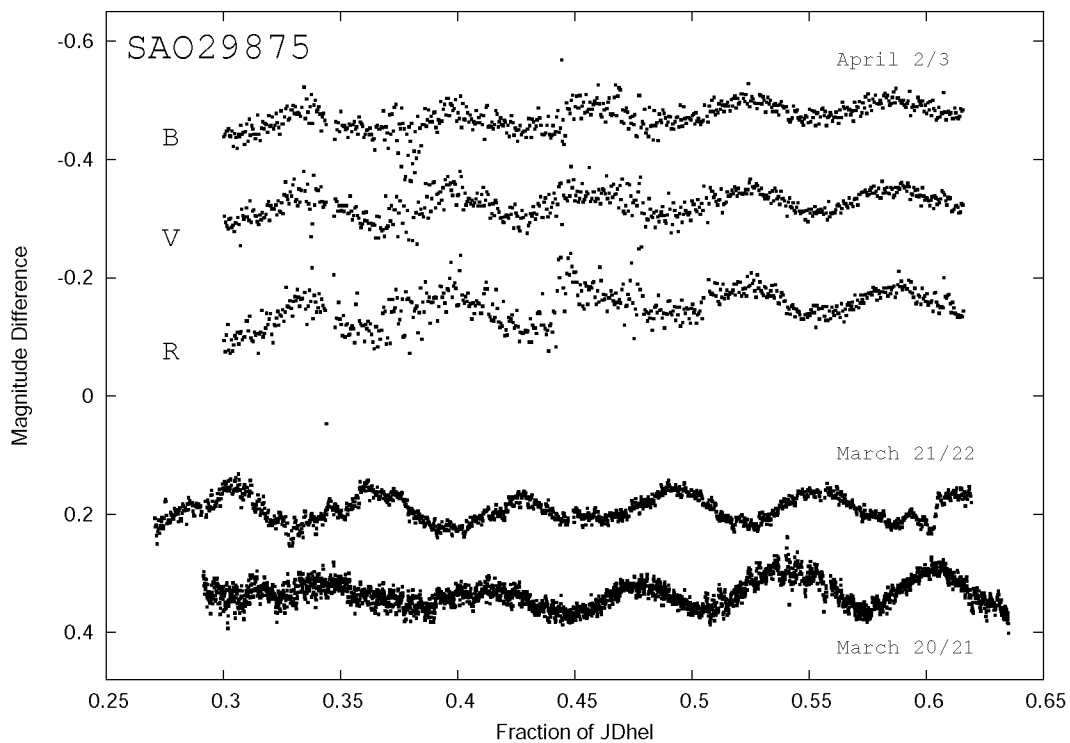


Figure 1. Light curve of SAO 29875

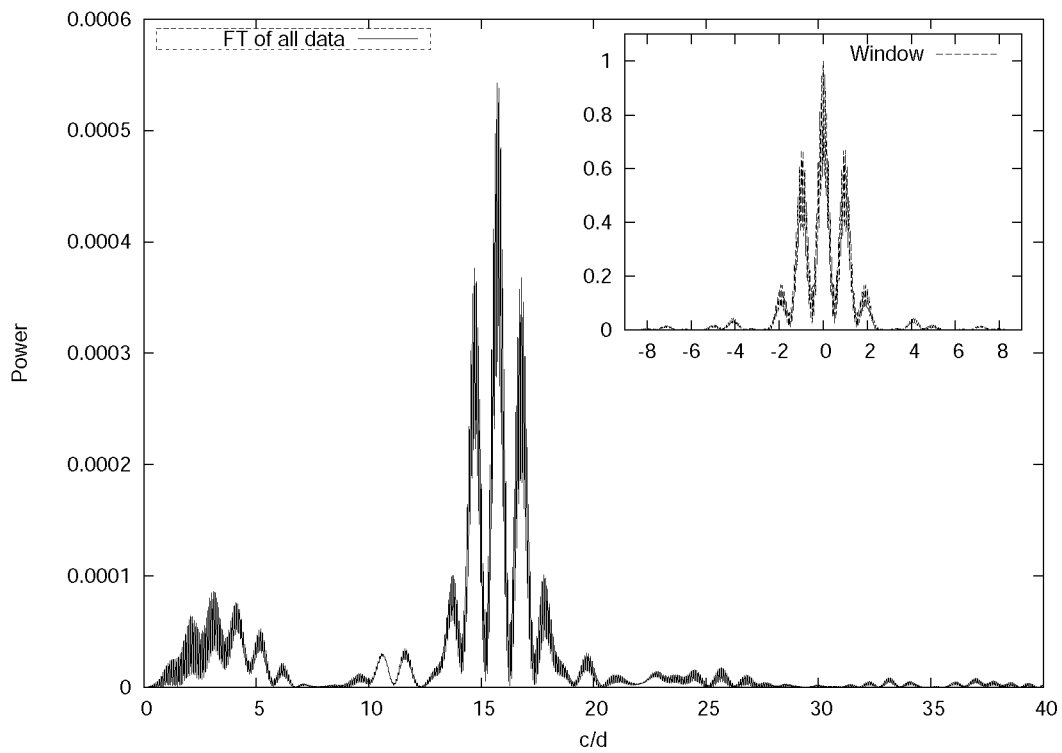


Figure 2. The periodogram of all data

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