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MISCLASSIFIED RV TAURI STARS

An RV Tauri variable, according to the definition given in the GCVS (Kholopov 1985) is a giant or supergiant, and it should have (1) a maximum and minimum spectral type of F-G and K-M, respectively, (2) a formal period between 30 and 150 days, and (3) its light curve is supposed to show alternating deep and shallow minima. It is interesting to know if the stars classified as RV (or RV:) satisfy these conditions.

Since numerous RV Tau variables have no published photometry or light curve only the first two conditions (spectral type and period) are considered here. Table I lists those stars whose spectra, as given in the GCVS, are M-type.

The extensive spectroscopic surveys of Rosino (1951) and Joy (1952) show that RV Tau stars have spectral types between F and K (from maximum to minimum). This result was confirmed later by Preston *et al.* (1963). There are, however, two stars with conflicting spectral types: for DY Aql and RV Tau Joy (1952) gave G5-K0 and G4-K1, respectively, while Preston *et al.* (1963) classified them, at certain phases, as M.

Table II lists those stars whose period is greater than 150^d. The real upper limit (if there is such) of the periods of RV Tau stars is clearly not 150^d, so stars like QV Aql, RU Hyi, or HZ Sgr could belong to this class.

There are four stars common in both Tables: BI Cep, V609 Oph, V794 Sgr, and LU Sct. These stars are almost certainly not RV Tau variables (Lovell (1989) published photographic light curves of V794 Sgr showing *equal* minima but *unequal* maxima).

In conclusion, apart from QV Aql, RU Hyi, and HZ Sgr, all stars listed in Table I and Table II are probably not RV Tau variables. Since a lot of RV Tau stars have no period and spectral type given in the GCVS, the number of misclassifications is certainly higher.

Table I

Star	Spectral type	Star	Spectral type
BI Cep	M5eII	V1541 Sgr	M5
CU Del	M3II	V2342 Sgr	M:
V609 Oph	M6II	V3808 Sgr	M5
V794 Sgr	M3eIa-M4Ia	V3829 Sgr	M3
V1377 Sgr	M2	GK Sct	M
V1462 Sgr	M5	KT Sct	M3
V1472 Sgr	M6	LU Sct	M4
V1486 Sgr	M3		

Table II

Star	Period (day)	Star	Period (day)
QV Aql	169.5	CK Lac	279
V786 Ara	200:	KW Lyr	260
BI Cep	212	V581 Oph	352
EI Cyg	287.6	V609 Oph	195
V1690 Cyg	285	HZ Sgr	163:
OR Her	210	V794 Sgr	175.2
RU Hyi	157	LU Sct	375:

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