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H $\alpha$  SPECTROSCOPY OF THE  
RS CVn STAR UX Ari (HD 21242)

Following the report (Weiler 1975a) of variations in H $\alpha$  and the Ca II H and K lines in several RS CVn type systems, we have begun observations of the H $\alpha$  region in UX Ari.

Nine spectrograms (dispersion 36 Å/mm) have been obtained of the region  $\lambda\lambda$ 5700-6800 with the Ritter Observatory 1m reflector and Cassegrain spectrograph. H $\alpha$  is in emission on all our spectrograms, but the intensity is highly variable. Our preliminary results are summarized in the table below. The phases have been computed from the orbital elements of Carlos and Popper (1971).

DATE (UT) 1975	HJD 2440000+	PHASE	EW (H $\alpha$ ) (Å)
5 Oct.	2690.893	0.199	0.54
16 Oct.	2701.812	0.895	0.36
6 Nov.	2722.746	0.147	1.53
11 Nov.	2727.699	0.916	0.54
11 Nov.	2727.788	0.930	0.57
17 Nov.	2733.600	0.833	0.86
18 Nov.	2734.664	0.998	0.19
20 Nov.	2736.649	0.306	0.95
20 Nov.	2736.770	0.325	0.92

The equivalent width of the H $\alpha$  emission varies by nearly a factor of ten over the interval of our observations. It is too early to tell if this variability is strictly phase dependent; conceivably some part of it could be erratic and connected with the radio outbursts seen in this star (Gibson, Hjellming, and Owen 1975). There

is the suggestion, however, that emission maximum occurs near phase 0.15, substantially in agreement with Weiler's (1975b) spectrophotometry.

Radial velocity measures show the cooler (K0 IV) component to be the origin of the H $\alpha$  emission. The hotter component (G5V) does have absorption lines visible in the red, though they are difficult to resolve at our dispersion. Three spectra near phase 0.9 show the H $\alpha$  absorption of the G5 star to the red of the emission, mimicking an inverse P-Cygni profile. Some of the equivalent width variations may be due to this spectral overlapping.

Additional spectroscopy of UX Ari and other RS CVn systems is in progress.

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KATHY MULLIGAN  
BERNARD W. BOPP  
Ritter Observatory  
The University of Toledo  
Toledo, OH 43606  
USA

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