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RADIAL VELOCITY OF RR LYRAE VARIABLE - RW Ari

RW Ari is a well known RR Lyrae type variable star. On the basis of photoelectric observations, Wisniewski (1971 A.A. 21.3.307) suggested that the star is a component of an eclipsing system, with a primary minima depth of 0.8 mag. after correction for the pulsation effect. To test that hypothesis, we have undertaken a spectroscopic study of this star.

Two spectrograms were obtained with the Kitt Peak Cassegrain spectrograph of the 84-inch (210 cm) telescope. Since at the pulsation maximum the stellar brightness is 12.1 mag., the dispersion of 103 Å/mm and the projected slit width of 15 μ were used. The spectrograms were measured with a Grant comparator using five lines of HI and Ca II, and the digitized output was reduced on the observatory's CDC 6400 computer. Below we give the individual velocities and their internal probable errors:

Helio. J.D.	Radial velocity	Internal p.e.
2400000 +	Km.s ⁻¹	
41348.678	-46.5	±1.9
41375.619	-11.7	3.5

Both observations were obtained at the same pulsational phase (0.03 phase apart) of decreasing light when radial velocities are expected to change slowly, particularly for Bailly type "c" variables. Despite that, our observed radial velocities differ by 35 km/sec! If the radial velocity variation is caused by pulsation only, the observed difference should be a few km/sec. We believe, therefore, that such a large observed difference in radial velocity is due to orbital motion. Additional spectroscopic and photoelectric observations are planned.

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