THE ASTRONOMICAL JOURNAL

PUBLISHED BY THE AMERICAN INSTITUTE OF PHYSICS
FOR THE AMERICAN ASTRONOMICAL SOCIETY

VOLUME 68

1963 October~No. 1313

NUMBER 8

Abstracts of Papers Presented at the 114th Meeting of the American Astronomical Society, held 22–24 July 1963, at the Geophysical Institute, University of Alaska, College, Alaska

Spectrophotometry of the Wolf-Rayet Star γ_2 Velorum. LAWRENCE H. ALLER, *University of California*, AND DONALD J. FAULKNER, *Mt. Stromlo Observatory*.—The brightest Wolf-Rayet star in the sky is the more luminous component of the binary γ Velorum, $m_v=2.22$. It is of particular interest since it is not only one of the bluest stars in the sky, but also has been measured in the rocket ultraviolet. We measured the energy distribution in the spectrum and the intensities of the brighter lines with the aid of a photoelectric scanner. This carbon-type Wolf-Rayet star shows strong lines of carbon and helium in various stages of ionization and relatively weak oxygen lines. The C III lines yield excitation temperatures of 22 000°K, C IV indicated about 80 000°K, while C V would suggest even higher temperatures. The color temperature of the star, as measured from the energy distribution in its spectrum, would be about 30 000°K.

Association of Explosive-Phase Flares with 2800 Mc/sec Bursts and SWF's. KAREN ANGLE, *Solar Observatory, Lockheed-California Company*.—Flares showing an explosive phase have been investigated to determine their relationship with 2900 Mc bursts and short-wave fadeouts (SWF). A study was made of 271 Lockheed flares selected as having a distinct explosive phase (i.e., a distinct point in the rise of a flare during which it undergoes "explosive" development as contrasted with flares which have a fairly uniform rise to maximum brightness). These flares were compared with records of 2800 Mc bursts and SWF's. A control sample of 4527 flares of all types was compared by Gladys Harvey with 2800 Mc and SWF events (kindly communicated in advance of publication). Comparison of the two samples shows that explosive-phase flares have a much higher association with bursts and SWF's.

Flare importance	No. of Flares	No. with 2800 Mc	% Assoc.	% ^a Assoc.	No. of Flares	No. with SWF	% Assoc.	% ^a Assoc.
3	4	4	100	97	4	4	100	97
2+	3	3	100	79	3	3	100	79
2	8	8	100	69	11	8	73	51
1+	9	9	100	1	10	6	60	37
1	31	23	74	22	43	11	26	11
1-	128	34	27	14	200	8	4	5

^a Results of G. Harvey study.

Furthermore, the start of the 2800 Mc burst correlates better with the explosive phase than with the start of the flare as indicated in a previous study of a smaller sample by A. E. Covington and G. Harvey (*Nature* 1961). A possible dependence on flare brightness is indicated by the sharply defined deviation between the importance 1 and brighter importance 1+ flares in the correlation with SWF's and 2800 Mc bursts.

Pulsational Instability of Cepheid Models. NORMAN H. BAKER, *Institute for Advanced Study, Princeton, New Jersey, and Institute for Space Studies, New York*.—Models of classical Cepheids have been constructed by numerically integrating the linearized equations for radial oscillations. Equilibrium model envelopes which include about 40% of the mass of the star are first obtained. Convection is taken into account in the equilibrium models, but is assumed to have no interaction with the pulsations. For each model the appropriate period and the stability coefficient are determined. By constructing a series of models of gradually increasing mean radius, all having the same mass and mean luminosity, the mean radius corresponding to maximum instability is found. If several such series are made, each series having a different mass and corresponding luminosity, the instability region