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RESULTS OF THE FIRST PHOTOMETRIC RUN AT ESO BY THE EUROPEAN
WORKGROUP ON Ap STARS

In October 1978, several European astronomers decided to cooperate in the frame of an European Working Group on Ap stars, with the aim of improving the coordination of future observation programmes. One of the first initiatives was the application by the Workgroup as an entity for observation time at ESO. The programme resulted from discussions held in Vienna, before the application, and in Paris six months later (by T. Kreidl, Bochum; Gh. Deridder and H. Hensberge, Brussels; F.A. Catalano, Catania; P. Renson, Liège; M. Floquet and M. Gerbaldi, Paris; R. Faraggiana, Trieste; H.M. Maitzen, K.D. Rakosch, M.J. Stift and W.W. Weiss, Vienna).

We report here the preliminary results for that part of the programme that concerns the variability of Ap stars. The final paper, including detailed light curves, more accurate periods and a discussion of the results, will be submitted for publication in *Astronomy and Astrophysics* within the next months.

The stars mentioned in Table I were observed with the 50cm ESO telescope from 1979 November 17/18 to December 6/7 and from 1979 December 22/23 to 1980 January 3/4 with the aim of deriving their rotational periods from the variability in Strömgren *u* and *v* filters. In Table II, the main results are summarized. Known and suspected very long period variables (showing in previous runs no variations in time intervals of 10 days) are omitted from this table since observations spread over a much longer time interval are needed to cover the whole cycle. We intend to monitor these slow rotators whenever possible. Other potential observers

are kindly encouraged to use the same comparison stars.

Table I
Summary of observed stars

programme stars (Ap) by HD number	number of observations	filters used	comparison stars by HD number
5601	16	u,v	6530,6706
19712	23	u,v	19739,20319
25267	36	u,v	24975,25385
30849	24	u,v	30861*,31587*,31640
38823	20	u,v	38856,38866
50169	2	uvby	50040,50109,50405
52847	2	uvby	52190,52350
53116	12	u,v	53237,53238
55540	2	uvby	55521,55815
56022	23	uvby	55892*,56456
81009	10	u,v	80447,82428
94660	1	uvby	93453,94724
101065	1	uvby	101128,101388,101596
101189	1	uvby	99104,101995,103884

The comparison stars marked by an asterisk are definite variable. HD 30861 got about $0^m.1$ fainter (in u and v) during a 2.5 hour interval in the night 1979 November 19/20, and has therefore immediately been canceled as comparison star. HD 31587 and HD 55892 were observed more frequently (11, resp. 20 observations). These data will be discussed in some detail in the announced paper. The observed range of variation is $\Delta u \approx 0^m.07$, $\Delta v \approx 0^m.05$ for HD 31587, and $\Delta u \approx 0^m.02$, $\Delta v \approx 0^m.04$, $\Delta b \lesssim 0.01$ and $\Delta y \approx 0^m.02$ in the case of HD 55892. The time intervals in which the change from minimum to maximum observed brightness occur are in both cases of the order of 1 - 2 days.

Table II
Results

star name by HD number	V magnitude, ¹ peculiarity type	total range Δu	Δv	approximate period (days)
5601	7.64 Si	$0^m.05$	$0^m.04$	1.1 ?
19712	7.34 Cr Eu	.04	.04	2.2
25267	4.64 Si	.07	.04	?
30849	8.86 Sr Eu	.05	.10	16
38823	7.33 Sr Eu (F)	.07	.14	8.7
53116	8.88 Sr Eu	.10	.06	13 ?
56022	4.89 Si	.05	.01	0.9^2
81009	6.53 Sr Cr Eu	.01	.05	34^3

¹ V magnitudes are taken from Vogt and Faundez (1979) or Gronbech and Olsen (1976), spectral peculiarity types from Bidelman and

McConnell (1973) or Bertaud and Floquet (1974).

² see also Renson (1976); $\Delta b = .015$, $\Delta y = .015$.

³ see also Hensberge et al. (1976) and Wolff (1975).

EUROPEAN Ap WORKING GROUP

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