COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS

Number 2456

Konkoly Observatory
Budapest
2 January 1984

HU ISSN 0374-0676

CO Aur - DOUBLE MODE CHARACTER CONFIRMED

By inspecting some 880 plates of the Sonneberg Sky Patrol taken from 1928-1983 we were able to find long time stability of the light curve parameters. One of us (B.F.) estimated the brightness by using the conventional Argelander method and improved the first period given by Mantegazza and Antonello (I.B.V.S. No. 2411, 1983). All bright observations were chosen and the improved period of $1^d.783003$ was obtained by conventional (O-C) calculation. After this, normal Fourier analysis of the original observations was executed. For several reasons the data were subdivided into three time sets. The first set contains the early observations (JD 2425500 to 2432000), the second one the in-between (JD 2432000 to 2439000) data and the third one the data from JD 2438000 to 2445000. All three sets were analysed independently. A clear peak was found at 0.56805 cpd (P: $1^d.78301$). The Fourier analysis for the first frequency was executed in the restricted frequency range of 0.55 cpd to 0.57 cpd with frequency steps of 0.00001 cpd.

Table

Set	JD	Number of observ.	First component f_1(cpd)	A_1(mag)	Second component f_2(cpd)	A_2(mag)
I	2425500-2431840	277	0.560865	0.17	0.70039	0.03
II	2432280-2438000	267	0.56085	0.20	0.70040	0.05
III	2438620-2445400	340	0.56085	0.20	0.70042	0.05

After least square sine-fitting and prewhitening the data were again Fourier-analysed (frequency range 0.4...0.8 cpd, step width 0.00005 cpd): In data sets II and III the highest feature is then at 0.7004 cpd ($P=1^{d}.4278$). In the first data set the feature at this frequency is indicated just above the noise level. One reason may be the inhomogeneity of the material of the first set. Some preliminary characteristics for the data derived from the Fourier spectra are given in the Table above. Further details will be published later.

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