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BLUE-INFRARED BEHAVIOUR OF SOME VARIABLES OF MIRA TYPE

During the study of the new infrared variables found by the writer in the field of M 16 - M 17 (Maffei, 1975), a new phenomenon has been discovered: some stars are variable if observed in infrared radiation and constant in blue light.

The following variables showed this behaviour: M 137, M 190, V 1975 Sgr, M 246 and M 238. M 137, V 1975 Sgr and M 238 may be SR, the remaining two of Mira type. The variables M 246 and M 238 are situated in a field centred on γ Cygni, which at present is still being studied by the writer in collaboration with Miss Brunella D'Onofrio.

The Fig. 1, 2 and 3 reproduce the light curves in blue (m_{pg}) and infrared (m_{ir}) radiation for the variables: M 190, V 1975 Sgr and M 246. All the plates (103a-0 and I-N (hypers.) + RG 5, respectively) have been collected with the 65/90 cm Schmidt telescope of the Osservatorio Astrofisico of Asiago. The coincidence of the infrared image with the blue one has been tested by means of the positive-negative method.

In order to explain this behaviour one needs multicolour observations connected with spectroscopic researches. Now we believe that the most obvious explanation is the coexistence of an infrared variable star of Mira or SR type with a blue companion. It is interesting to remember that the existence of blue-infrared binary stars has been recently suggested by Humphreys and Ney (1974).

The percentage of the long period variables with this behaviour appears to be not negligible. Only 9 of the Mira or SR infrared variables observed in the field of M 16 - M 17, were visible also in blue light; three of these proved to be constant.

For the near future the writer hopes to reach a statistically significant result by means of researches in four other stellar fields that he began in 1967 and that are still in progress.

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References:

- R.M. Humphreys and E.P. Ney (1974) - *Astrophys.J.* vol.190 p.339
P. Maffei (1975) - *I.B.V.S.* No.985

Figure 1

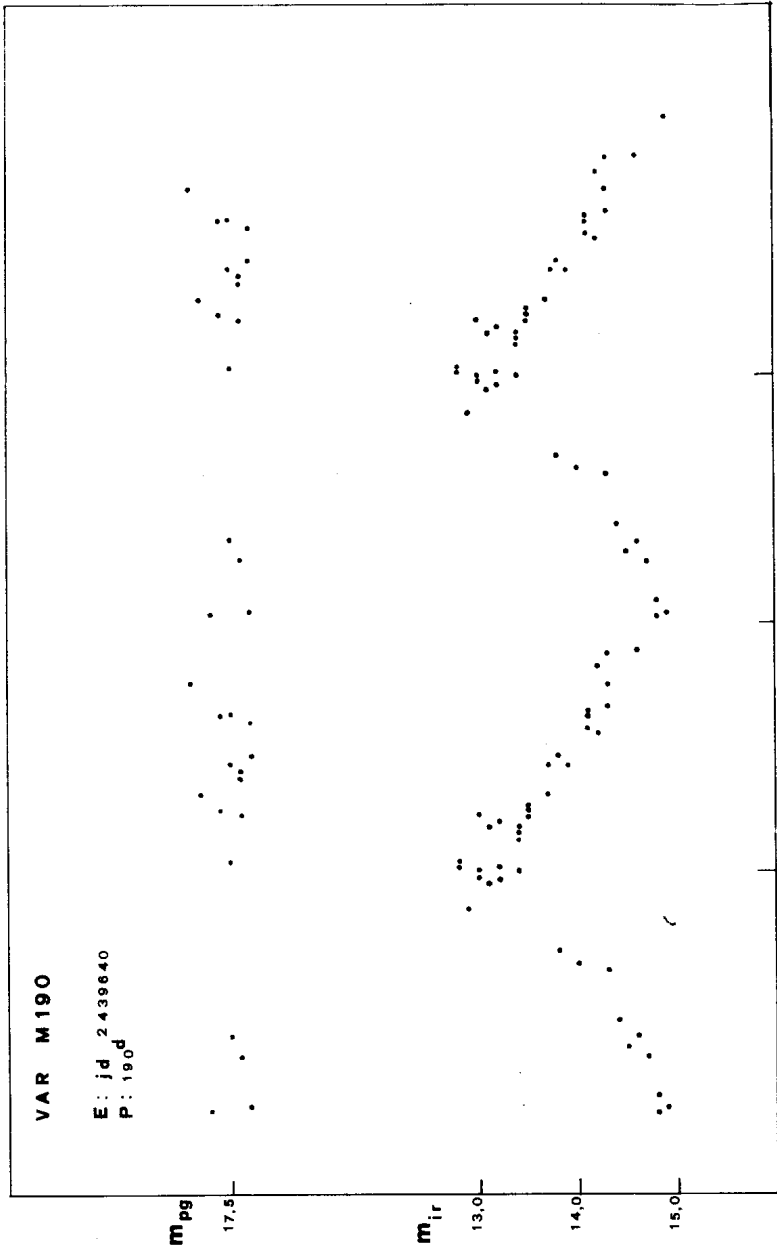


Figure 2

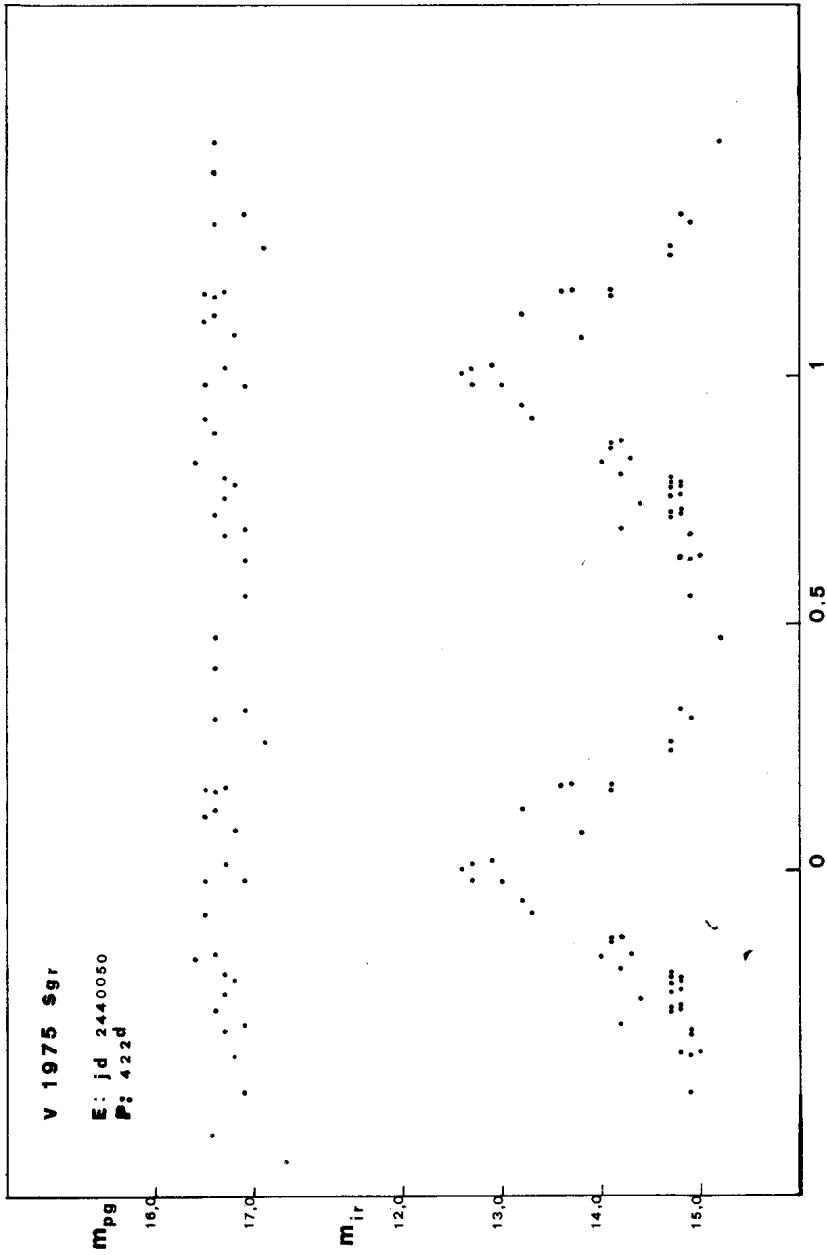


Figure 3

