

TWO IRREGULAR VARIABLES IN SCUTUM

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Abstract

Analysis of the light curves of the two stars, XX Scuti and FQ Scuti, have shown that both are irregular. FQ Scuti appears to have nova-like properties while XX Scuti resembles an R Coronae Borealis type star.

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As a summer undergraduate research assistant at the Maria Mitchell Observatory under the direction of Dr. Dorrit Hoffleit, I studied two stars, FQ Sct and XX Sct. These stars were discovered by G. A. Bakoš (1950) at the Leiden Observatory.

Interestingly enough, FQ Sct shows little or no variation previous to or since the observations at Leiden (JD 2,427,900-2,429,550). Nantucket plates confirm the variability in this interval. All available plates outside this interval show the star at minimum (14.5^m). Since its variability seems to be confined to one short period of activity, classification as a nova-like star is in order. The interesting segment of the light curve is shown in Figure 1.

XX Sct seems to have two distinct types of behavior. In one, the star is mostly at maximum (13^m) with sharp spikes towards the minimum (Figure 2F). The second type is just the reverse (Figure 2D). The rapid changes in brightness would seem to indicate an R Coronae Borealis type star, although spectral analysis is needed to confirm this.

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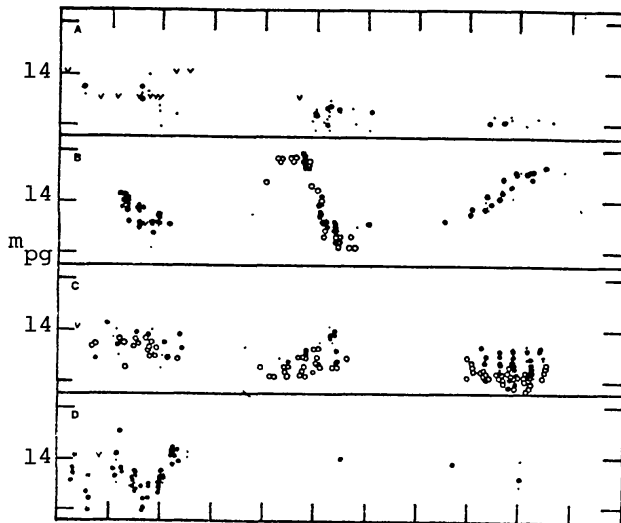


Figure 1. Light curve of FQ Sct. 100 days to the interval.

- A) JD 26400-27500
- B) JD 27500-28600
- C) JD 28600-29700
- D) JD 29700-30800

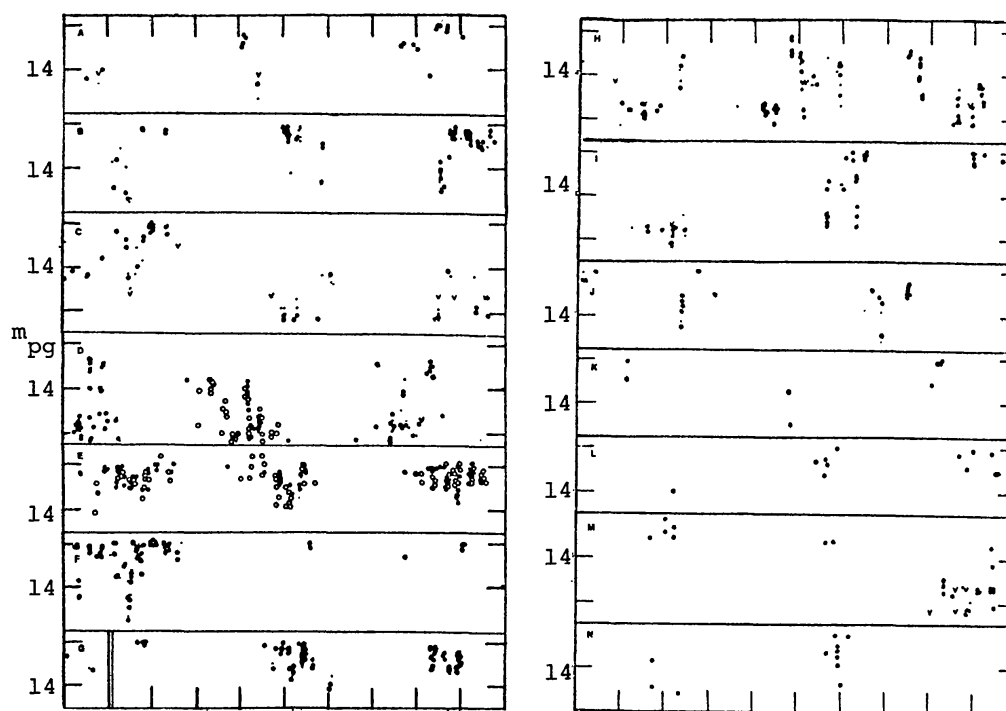


Figure 2. Light curve of XX Sct. 100 days to the interval.

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| A) JD 24300-25300 | H) JD 33000-34000 |
| B) JD 25300-26300 | I) JD 34000-35000 |
| C) JD 26400-27400 | J) JD 35000-36000 |
| D) JD 27600-28600 | K) JD 40000-41000 |
| E) JD 28600-29600 | L) JD 41000-42000 |
| F) JD 29700-30700 | M) JD 42100-43100 |
| G) JD 30900-31000
and 32000-32900 | N) JD 43100-43719 |

REFERENCE

Bakoš, G. A. 1950, Ann. Sterrew. Leiden, 20, 177.