REFLECTION NEBULA AROUND THE STAR V* BE CAM

Position for BE Cam (V* BE Cam): 03 49 31.277 +65 31 33.56

35 hours total exposure, LRGB image - telescope Celestron RASA, F2.2 astrograph - camera ZWO Asi1600mmc - filter Baader 2" LRGB
REFLECTION NEBULA AROUND THE STAR V* BE CAM

Visible Objects
BE CAMELOPARDALIS (V* BE Cam) is a red-orange, bright giant of the spectral type M2II B ♦️ with an average apparent brightness of +4.39 and is about 965 light years away from Earth. It is classified as an irregular, long-period variable star. Its brightness varies from +4.35 to +4.48.

**DETAILS**
- Mass: 2.93 M☉
- Luminosity: 5.471 L☉
- Temperature: 3,625 K
- Type: Variable Lc

**OTHER DESIGNATIONS**
- BE Cam, BD+65° 369, HR 1155, HD 23475, HIP 17884, SAO 12916
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Usually completely outshined by its central star.

Due to the enormous radiant power of BE Cam, especially in the red range of the spectrum, the fine surrounding reflection nebula is to a large extent over-radiated. Only the surrounding dust formations (page 2: FIG.1) are visible.

In order to show the fine reflection nebula in the photo, more than 3,600 individual images of 15 and 30 seconds each were taken and digitally processed to suppress the radiant power of BE Cam (right picture). The finished photo contains a total exposure of more than 35 hours.
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Invisible objects

TGU AND IREC SOURCES FORM A NOTICEABLE PATTERN

INFRARED SOURCES IN THE FIELD
- TGU: Catalogue of Dark Fog and Compaction based on DSS and IRAS
- IREC: Infrared sources based on IRAS satellite data
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Star density / star distribution

STAR DENSITY AND STAR DISTRIBUTION

BE Cam is masked, nebula objects are removed, stars are magnified 5 times and the spectral colors of the stars are highlighted.

A band of low star density appears dominating in the reddish wavelengths.

CONCLUSION dense matter in the dark band scatters the blue wavelengths of the stars, so that red stars appear above average in the image.
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Star density / star distribution

The band of low star density correlates with the TGU and IREC objects from page 5.
REFLECTION NEBULA AROUND THE STAR V* BE CAM

Galaxies in the field

DISTRIBUTION OF GALAXIES
Weak background galaxies shine through less dense cosmic matter. Also near TGU and IREC objects (orange).

CONCLUSION:
Dark clouds are clearly defined.
REFLECTION NEBULA AROUND THE STAR V* BE CAM

Overlay with IRAS satellite data

INFRARED
Overlay of the illustration on page 8 with data from the Infrared Astronomical Satellite (IRAS). Correlation of the positions of the TGU Dark Nebula and the IREC objects with conspicuous infrared sources.
INFRARED SOURCES BELOW BE CAM

Indication of a dense molecular cloud

AKARI/FIS satellite image

HERSCHEL PACS satellite image

IRIS COLOR
REFLECTION NEBULA
AROUND THE STAR V* BE CAM

An isolated object?

OBJECT MAP, BASED ON SHAPE, COLOR,
DENSITY, VECTOR AND LAYER
RESUMÉ / CONCLUSION
The nebula around the star BE Camelopardalis (Fig. 1) is a rare yellow-orange reflection nebula of the Merope type (Fig. 2) with an extension of ~20 arc minutes.
The entire region around the red-orange giant star is filled with gas and dust that are not self-illuminating, illuminated only by near, bright stars.
An indication of a dense matter distribution in the area are the numerous reddish stars. The blue components of light are scattered by cosmic matter, leaving reddish light.
BE Cam is located above a region of relatively bounded dark clouds and in the middle of a field of dust, gas and molecular clouds that the star illuminates with its scattered light.
The remarkable shape of the BE Cam reflection nebula, with its widely running filaments, is caused by the radiation pressure of the central star, which suggests its proximity to the nebula. The colouring of the nebula in a bright red-orange is also an indication.

References to the independence of the Reflection Nebula
(View of the nebula at page 3)
Other nebula formations and extensions of the region seem to run under the BE Cam Reflection Nebula and reappear at another location.
An indication of the three-dimensionality of the nebula structures.
The „flow direction“ of the BE Cam Reflection Nebula is also clearly contrary to the other nebulae in the field (Fig. 3).