

Messier 14 (also known as M14 or NGC 6402)

Observation data (J2000 epoch)

Class VIII

Constellation Ophiuchus

Right ascension 17h 37m 36.15s

Declination $-03^{\circ} 14' 45.3''$

Distance 30.3 kly (9.3 kpc)

Apparent magnitude (V) +8.32

Apparent dimensions (V) 11.0'

Physical characteristics

Mass $1.04 \times 10^6 M_{\odot}$

Radius 50 ly

Metallicity $[Fe / H] = -1.28^3$ dex



Messier 14 as seen with amateur telescope

M14 is a globular cluster in the constellation Ophiuchus. It was discovered by **Charles Messier** in 1764.

At a distance of about 30,000 light-years, M14 contains several hundred thousand stars. At an apparent magnitude of +7.6 it can be easily observed with binoculars. Medium-sized telescopes will show some hint of the individual stars of which the brightest is of magnitude +14.

The total luminosity of M14 is in the order of 400,000 times that of the Sun corresponding to an absolute magnitude of -9.12. The shape of the cluster is decidedly elongated. M14 is about 100 light-years across.

A total of 70 variable stars are known in M14, many of the W Virginis variety common in globular clusters.

In 1938, a nova appeared, although this was not discovered until photographic plates from that time were studied in 1964. It is estimated that the nova reached a maximum brightness of magnitude +9.2, over five times brighter than the brightest 'normal' star in the cluster.

Another thing that makes Messier 14 unusual is the presence of CH stars, such as the one that was discovered in 1997. CH stars are a very specific type of Population II carbon stars that can be identified by CH absorption bands in the spectra.

Middle aged and metal poor, these underluminous suns are known to be binaries. **Patrick Cote**, the chief author of the research team that discovered the star, wrote in their research report to the American Astronomical Society:

We report the discovery of a probable CH star in the core of the Galactic globular cluster M14 identified from an integrated-light spectrum of the cluster obtained with the MOS spectrograph on the Canada-France-Hawaii telescope. Both the star's location near the tip of the red giant branch in the cluster colour-magnitude diagram and its radial velocity therefore argue for membership in M14. Since the intermediate-resolution MOS spectrum shows not only enhanced CH absorption but also strong Swan bands of C₂, M14 joins Centaurus as the only globular clusters known to contain "classical" CH stars. Although evidence for its duplicity must await additional radial velocity measurements, the CH star in M14 is probably, like all field CH stars, a spectroscopic binary with a degenerate (white dwarf) secondary.

OPHIUCHUS AND THE ZODIAC

The name Zodiac has an original meaning of "Circle of 12 animated objects". The odd one that does not fit into this listing is Libra, the Scales. There are also indications that the stars of the constellation Libra once were part of the constellation Scorpion, forming its extended claws. But that would leave only 11 signs in the Zodiac. Perhaps Ophiuchus (as a genuine living being) once actually was part of the 12 signs of the Zodiac and was only deleted when Scorpion was cut down to size to fit into the monthly timing of the Sun with creating Libra?

AK, with Wikipedia Notes

