FAULKES TELESCOPE

Life Cycle of Stars - Supernovae

Photometry: Background Science

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Apparent Magnitude

The apparent magnitude of an object is a measure of its apparent brightness as seen by an observer on Earth. The brighter the objects appears, the lower the value of it's magnitude. For example, and object of apparent magnitude 1 appears brighter than an object of apparent magnitude 4.

This is because Ptolemy decided that all the brightest objects should be listed first, and the dimmer ones to follow. Brighter objects such as the Sun and Moon were never considered when this system was devised and were added in later with negative values.

The original magnitude scale ran from 1 to 6 (the limit of human perception) and each grade of magnitude was considered to be twice the brightness of the previous grade (a logarithmic scale).

In 1856, the system was formalised by defining a typical first magnitude star as being 100 times brighter than a sixth magnitude star. Therefore, a star that is one magnitude brighter than another is 2.512 times brighter.

With bigger and better telescopes at our disposal, the magnitude scale is no longer restricted between 1 and 6 - The Hubble Space Telescope has located stars with magnitudes as low as 30.

This table compares the magnitudes of different objects.

Apparent Magnitude	Celestial Object
-26.73	The Sun
-12.6	Full Moon
-4.7	Venus
-3.9	Faintest observable objects during the day with the naked eye
-2.9	Mars
-2.8	Jupiter
-1.5	Sirius (Brightest star - excluding Sun)
5.5	Uranus
6	Faintest observable object with the naked eye
7.7	Neptune
12.6	Brightest Quasar
27	Faintest object observed with 8m ground-based telescope
30	Faintest object observed with Hubble
38	Faintest object observable with the Overwhelmingly Large Telescope