

3.1.6 Cathodoluminescence

In cathodoluminescence the energy driving the phosphor is an electron that has been accelerated away from a cathode. This process is the means by which light is generated in a cathode ray tube.

3.1.7 Chemiluminescence

Some chemical reactions can produce light directly, not via the heat the reaction creates. The process is used by some living organisms to generate light; the best known example being the glow worm.

3.1.8 Thermoluminescence

This is exhibited by some materials when they are heated. The materials give out much more light than would be expected due to black body radiation. The best known practical use of the method of light production is the mantle used in some types of gas lamps.

3.2 Daylight

The sun is a large cloud of high temperature hydrogen gas. It is held together by its own gravitational force. As the atoms of hydrogen are held together at such pressure and high temperature it is possible for nuclear fusion to take place and the hydrogen is converted into heavier elements, mainly helium. This process releases a lot of energy which keeps the sun hot; because the sun is so hot it radiates energy by incandescence.

The sun is the biggest source of light on earth. Light from the sun not only gives us light so that we can see, it also powers the whole ecosystem on earth. Light from the sun can reach the earth in two ways: directly as sunlight, and, after it has been modified and redistributed by the atmosphere, as skylight.

3.2.1 Sunlight

The key to the understanding of sunlight is knowing where the sun will be in the sky at any given time or date relative to the site in question.

On any given day the sun will rise in the east. In the northern hemisphere the sun then rises through the southern sky; reaching its highest altitude at due south at solar noon and passes through the southern sky before setting in the west.

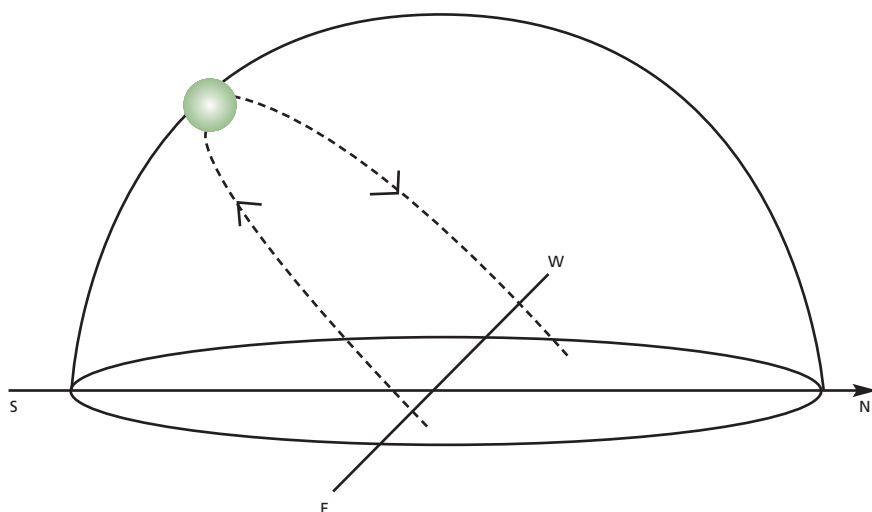


Figure 3.5 The daily sun path