

the galactic coordinate system ▲▲◀◀▶▶▶?

Our Galaxy is lens-shaped with the Sun lying approximately half-way between the centre and the rim of the lens and near the centre of the plane of the lens. From this vantage point, our Galaxy appears as a band of light on the celestial sphere made up of a myriad of stars and clouds of gas and dust. This band of light is known as the *Milky Way*, part of which is shown in [Figure 18](#).

figure 18: The Milky Way and the 4.2 m William Herschel Telescope on La Palma.



When astronomers study the structure of our Galaxy, they often find it more convenient to define the positions of stars in the *galactic* coordinate system rather than the [equatorial coordinate system](#). The reference plane of the galactic coordinate system is the disc of our Galaxy (i.e. the Milky Way) and the intersection of this plane with the celestial sphere is known as the *galactic equator*, which is inclined by about 63° to the celestial equator. *Galactic latitude*, b , is analogous to [declination](#), but measures distance north or south of the galactic equator, attaining $+90^\circ$ at the

north galactic pole (NGP) and -90° at the south galactic pole (SGP). The galactic latitude of the star X in [Figure 19](#) is arc YX and is north.

Galactic longitude, l , is analogous to right ascension and is measured along the galactic equator in the same direction as right ascension. The zero-point of galactic longitude is in the direction of the *Galactic Centre (GC)*, in the constellation of Sagittarius; it is defined precisely by taking the galactic longitude of the north celestial pole to be exactly 123° . The galactic longitude of the star X in [Figure 19](#) is given by the angle between GC and Y.

figure 19: The galactic coordinate system.

