

## Physics 174

### Some Definitions

29 January, 2007

#### Time

**Day** — Time between successive risings or settings of the Sun or a star.

**Month** — Time for the Moon to go through its phases or move around the sky once.

**Year** — Time for the seasons to repeat or for the Sun to move around the sky once.

Note: Each of these time definitions is actually for two distinct periods.

#### Motion

**Daily motion** — Motion of celestial objects relative to the horizon.

**Annual motion** — Motion of the Sun, Moon, and planets relative to the stars.

**Direct motion** — The usual annual motion from west to east.

**Retrograde motion** — Annual motion east to west.

#### Celestial positions

**Altitude** — The angle between a celestial object and the horizon.

**Azimuth** — The direction of the horizon directly below a celestial object.

**North celestial pole** — The point in the northern sky about which all stars revolve.

**Meridian** — The curve running from the northern horizon through the zenith to the southern horizon dividing the sky into eastern and western halves.

**Celestial equator** — The curve through all the stars in the sky which rise exactly in the east and set exactly in the west.

**Ecliptic** — The path of the Sun's annual motion through the stars.

**Summer solstice** — The location of the Sun on the ecliptic on the longest day of the year.

**Winter solstice** — The location of the Sun on the shortest day of the year.

**Equinox** — The location of the Sun when it rises exactly in the east and sets exactly in the west; where the ecliptic crosses the celestial equator.

#### Stars

**Circumpolar stars** — The stars which are always above the horizon and never set.

**Heliacal rising** — The first visible rising of a star after it has disappeared behind the Sun.

**Constellations** — Arbitrary groupings of stars.

**Zodiac** — The band of stars along the ecliptic through which the planets move.

#### Planets

**Conjunction** — When a planet is closest to the Sun in the sky.

**Opposition** — When a planet is opposite to the Sun in the sky.

**Inferior planets** — The planets which stay close to the Sun.

**Superior planets** — The planets which can be at opposition.

**Sidereal period** — The period as measured with respect to the stars.

**Synodic period** — The period between successive oppositions, conjunctions, etc.

#### Finally ...

**Precession** — The slow motion of the NCP and celestial equator with respect to the ecliptic and stars.