

Cosmic Times 1929 Glossary

aggregate

An aggregate is an assemblage of various particles. In this case, aggregates of many stars form nebulae or galaxies.

Andromeda

The largest galaxy in the local group of galaxies. Also known as Messier 31, M31, or NGC 224, it lies 2.5 million light years away and is the closest spiral galaxy to us

Cepheid variable stars

A type of variable star that exhibits a regular pattern of changing brightness as a function of time. The period of the pulsation pattern is directly related to the star's intrinsic brightness.

constellation

A constellation is a specific and recognizable grouping of stars. Constellations are given names to distinguish them.

Cosmological constant

Lambda – A constant term (labeled Lambda) that Einstein added to his general theory of relativity in the mistaken belief that the Universe was neither expanding nor contracting. The cosmological constant was found to be unnecessary once observations indicated the Universe was expanding.

Doppler effect

The apparent change in wavelength of sound or light caused by the motion of the source, observer or both. Waves emitted by a moving object as received by an observer will be blueshifted (compressed) if approaching, redshifted (elongated) if receding. It occurs both in sound and light. How much the frequency changes depends on how fast the object is moving toward or away from the receiver.

electromagnetic spectrum

The full range of frequencies, from radio waves to gamma rays, that characterizes light.

galaxy

A component of our universe made up of gas and a large number (usually more than a million) of stars held together by gravity. When capitalized, Galaxy refers to our own Milky Way Galaxy.

General Relativity

The geometric theory of gravitation developed by Albert Einstein, incorporating and extending the theory of special relativity to accelerated frames of reference and introducing the principle that gravitational and inertial forces are equivalent. The theory has consequences for the bending of light by massive objects, the nature of black holes, and the fabric of space and time.

globular clusters

A spherically symmetric collection of stars which shared a common origin. The cluster may contain up to millions of stars spanning up to 50 parsecs.

intrinsic luminosity

The intrinsic luminosity of a star is its actual brightness and magnitude, not simply its apparent brightness that we can witness from earth. A star's intrinsic luminosity can be determined from its apparent brightness and its distance from earth.

light year

A unit of length used in astronomy which equals the distance light travels in a year. At the rate of 300,000 kilometers per second (671 million miles per hour), 1 light-year is equivalent to 9.46053×10^{12} km, 5,880,000,000,000 miles or 63,240 Astronomical Units.

Magellanic Clouds

The two Magellanic Clouds are irregular dwarf galaxies, which are the Milky Way's closest neighbors. Historically they have been thought to be orbiting our Galaxy, but recent research suggests that they members of our Local Group of galaxies, but are just passing by. They are visible from the southern hemisphere.

nebula

A diffuse mass of interstellar dust and gas. A reflection nebula shines by light reflected from nearby stars. An emission nebula shines by emitting light as electrons recombine with protons to form hydrogen. The electrons were made free by the ultraviolet light of a nearby star shining on a cloud of hydrogen gas. A planetary nebula results from the explosion of a solar-like type star.

Historically, the term nebula referred to any fuzzy patch in the sky that could not be resolved by telescopes. Up until 1920, this included galaxies. The term "nebula" to mean "galaxy" was in use in publications until at least the mid-1940s.

parsecs

The distance to an object which has a parallax of one arc second. It is equal to 3.26 light years, or 3.1×10^{18} cm. A kiloparsec (kpc) is equal to 1000 parsecs. A megaparsec (Mpc) is equal to a million (10⁶) parsecs.

photographic plates

In this context, a photographic plate is just another term for a photograph

radial velocity

The speed at which an object is moving away or toward an observer. By observing spectral lines, astronomers can determine how fast objects are moving away from or toward us; however, these spectral lines cannot be used to measure how fast the objects are moving across the sky.

red shift

An apparent shift toward longer wavelengths of spectral lines in the radiation emitted by an object caused by the emitting object moving away from the observer. See also Doppler effect.

schema

a framework, outline or model

spiral nebulae

Historic term for a spiral galaxy, which changed in the 20th century. A spiral galaxy belongs to one of the three main classes of galaxy. Spiral galaxies consist of a flat, rotating disk of stars, gas and dust, and a central concentration of stars known as the bulge.

Universe

Everything that exists, including the Earth, planets, stars, galaxies, and all that they contain; the entire cosmos.