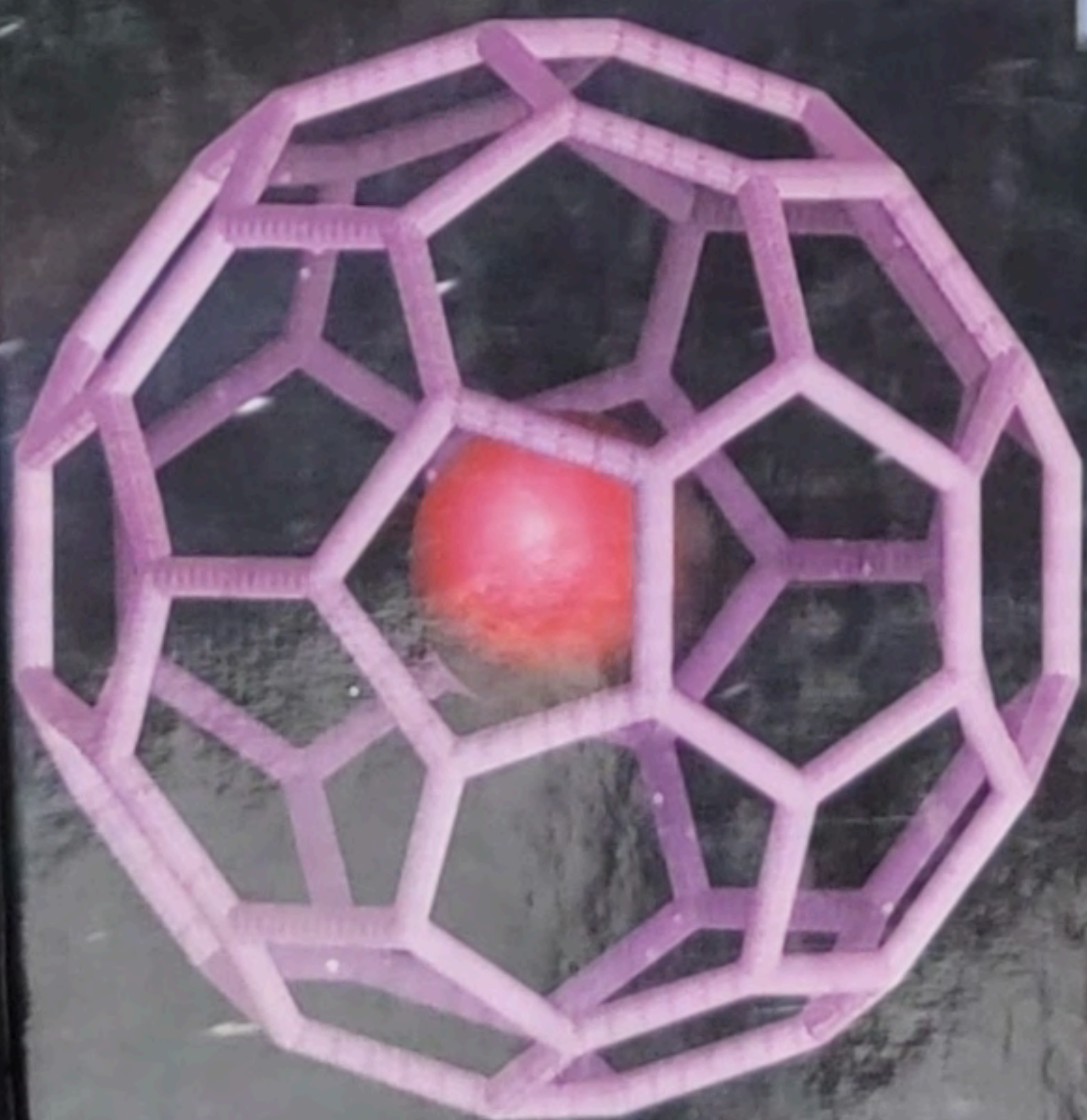


McGraw-Hill
Dictionary

 of
SCIENTIFIC
and

TECHNICAL
TERMS



Sixth Edition

On the cover: Representation of a fullerene molecule with a noble gas atom trapped inside. At the Permian-Triassic sedimentary boundary the noble gases helium and argon have been found trapped inside fullerenes. They exhibit isotope ratios quite similar to those found in meteorites, suggesting that a fireball meteorite or asteroid exploded when it hit the Earth, causing major changes in the environment. (Image copyright © Dr. Luann Becker. Reproduced with permission.)

Over the six editions of the Dictionary, material has been drawn from the following references: G. M. Garrity et al., *Taxonomic Outline of the Prokaryotes*, Release 2, Springer-Verlag, January 2002; D. W. Linzey, *Vertebrate Biology*, McGraw-Hill, 2001; J. A. Pechenik, *Biology of the Invertebrates*, 4th ed., McGraw-Hill, 2000; U.S. Air Force Glossary of Standardized Terms, AF Manual 11-1, vol. 1, 1972; F. Casey, ed., *Compilation of Terms in Information Sciences Technology*, Federal Council for Science and Technology, 1970; *Communications-Electronics Terminology*, AF Manual 11-1, vol. 3, 1970; P. W. Thrush, comp. and ed., *A Dictionary of Mining, Mineral, and Related Terms*, Bureau of Mines, 1968; *A DOD Glossary of Mapping, Charting and Geodetic Terms*, Department of Defense, 1967; J. M. Gilliland, *Solar-Terrestrial Physics: A Glossary of Terms and Abbreviations*, Royal Aircraft Establishment Technical Report 67158, 1967; W. H. Allen, ed., *Dictionary of Technical Terms for Aerospace Use*, National Aeronautics and Space Administration, 1965; *Glossary of Stinfo Terminology*, Office of Aerospace Research, U.S. Air Force, 1963; *Naval Dictionary of Electronic, Technical, and Imperative Terms*, Bureau of Naval Personnel, 1962; R. E. Huschke, *Glossary of Meteorology*, American Meteorological Society, 1959; *ADP Glossary*, Department of the Navy, NAVSO P-3097; *Glossary of Air Traffic Control Terms*, Federal Aviation Agency; *A Glossary of Range Terminology*, White Sands Missile Range, New Mexico, National Bureau of Standards, AD 467-424; *Nuclear Terms: A Glossary*, 2d ed., Atomic Energy Commission.

**McGRAW-HILL DICTIONARY OF SCIENTIFIC AND TECHNICAL TERMS,
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ISBN 0-07-042313-X

Library of Congress Cataloging-in-Publication Data

McGraw-Hill dictionary of scientific and technical terms--6th ed.

p. cm.

ISBN 0-07-042313-X (alk. paper)

1. Science--Dictionaries. 2. Technology--Dictionaries. I. Title: Dictionary of scientific and technical terms.

Q123.M15 2002
503—dc21

2002026436

Lumbricus [INV ZOO] A genus of earthworms recognized as the type genus of the family Lumbricidae. ('lʌm·brə·kəs)

Lumbrineridae [INV ZOO] A family of errantian polychaetes in the superfamily Eunicia. (,lʌm·brɪ·ner·ə·dē)

lumen [ANAT] The interior space within a tubular structure, such as within a blood vessel, a duct, or the intestine. [OPTICS]

The unit of luminous flux, equal to the luminous flux emitted within a unit solid angle (1 steradian) from a point source having a uniform intensity of 1 candela, or to the luminous flux received on a unit surface, all points of which are at a unit distance from such a source. Symbolized lm. [SCITECH] The space within a tube. ('lū·mən)

lumen-hour [OPTICS] A unit of quantity of light (luminous energy), equal to the quantity of light radiated or received for a period of 1 hour by a flux of 1 lumen. Abbreviated lm-hr. ('lū·mən 'aʊr)

lumen per watt [OPTICS] The unit of luminosity factor and of luminous efficacy. Abbreviated lm/w. ('lū·mən pər 'wāt)

lumen-second [OPTICS] A unit of quantity of light (luminous energy), equal to the quantity of light radiated or received for a period of 1 second by a flux of 1 lumen. Abbreviated lm-sec. ('lū·mən 'sek·ənd)

lumerg See lumberg. ('lū·mərg)

luminaire [ELEC] An electric lighting fixture, wall bracket, portable lamp, or other complete lighting unit designed to contain one or more electric lighting sources and associated reflectors, refractors, housing, and such support for those items as necessary. ('lū·mə'ner)

luminance [OPTICS] The ratio of the luminous intensity in a given direction of an infinitesimal element of a surface containing the point under consideration, to the orthogonally projected area of the element on a plane perpendicular to the given direction. Formerly known as brightness. ('lū·mə·nəns)

luminance carrier See picture carrier. ('lū·mə·nəns ,kər·ē·ər)

luminance channel [COMMUN] A path intended primarily for the luminance signal in a color television system. ('lū·mə·nəns ,chan·əl)

luminance factor [OPTICS] The ratio of the luminance of a body when illuminated and observed under certain conditions to that of a perfect diffuser under the same conditions. ('lū·mə·nəns ,fak·tər)

luminance primary [COMMUN] One of the three transmission primaries whose amount determines the luminance of a color in a color television system. ('lū·mə·nəns 'prɪ·mer·ē)

luminance signal [COMMUN] The color television signal that is intended to have exclusive control of the luminance of the picture. Also known as Y signal. ('lū·mə·nəns ,sig·nəl)

luminescence [PHYS] Light emission that cannot be attributed merely to the temperature of the emitting body, but results from such causes as chemical reactions at ordinary temperatures, electron bombardment, electromagnetic radiation, and electric fields. (,lū·mə'nes·əns)

luminescent [PHYS] Capable of exhibiting luminescence. (,lū·mə'nes·ənt)

luminescent cell See electroluminescent panel. (,lū·mə'nes·ənt 'sel)

luminescent center [SOLID STATE] A point-lattice defect in a transparent crystal that exhibits luminescence. (,lū·mə'nes·ənt 'sen·tər)

luminescent dye [MATER] A dye that is made luminous by excitation with an outside energy source; used in luminous paint. (,lū·mə'nes·ənt 'dɪ)

luminescent screen [ELECTR] The screen in a cathode-ray tube, which becomes luminous when bombarded by an electron beam and maintains its luminosity for an appreciable time. (,lū·mə'nes·ənt 'skrēn)

luminol [ORG CHEM] $C_8H_7N_3O_2$ A white, water-soluble, crystalline compound that melts at 320°C; used in an alkaline solution for analytical testing in chemistry. Also known as 3-aminophthalic hydrazide. ('lū·mə·nəl)

luminophor [PHYS] A luminescent material that converts part of the absorbed primary energy into emitted luminescent radiation. Also known as fluophor; fluor; phosphor. ('lū·min·ə·fər)

luminosity [NUCLEO] A measure of the performance of a colliding-beam system, equal to the reaction rate or number or

interactions per second divided by the interaction cross section. [OPTICS] See luminosity factor. (,lū·mə'nɪs·əd·ē)

luminosity classes [ASTRON] A classification of stars in an orderly sequence according to their absolute brightness. (,lū·mə'nɪs·əd·ē ,klas·əz)

luminosity curve See luminosity function. (,lū·mə'nɪs·əd·ē ,kərv)

luminosity factor [OPTICS] The ratio of luminous flux in lumens emitted by a source at a particular wavelength to the corresponding radiant flux in watts at the same wavelength; thus this is a measure of the visual sensitivity of the eye. Also known as luminosity. (,lū·mə'nɪs·əd·ē ,fak·tər)

luminosity function [ASTRON] The functional relationship between stellar magnitude and the number and distribution of stars of each magnitude interval. Also known as relative luminosity factor. [OPTICS] A standard measure of the response of an eye to monochromatic light at various wavelengths; the function is normalized to unity at its maximum value. Also known as luminosity curve; spectral luminous efficiency; visibility function. (,lū·mə'nɪs·əd·ē ,fəŋk·shən)

luminosity monitor [NUCLEO] A device, located on the inside of the detector of a colliding-beam accelerator near the two entering beams, that gives a signal proportional to the total number of collisions that occur at the interaction point. (,lū·mə'nɪs·əd·ē ,mɒn·əd·ər)

luminous blue variable [ASTRON] Any of a small group of high-luminosity, unstable, hot supergiant stars that have irregular eruptions or ejections with greatly enhanced mass outflow (10^{-5} to 10^{-4} solar mass per year). ('lū·mə·nəs ,blu 'ver·ē·ə·bəl)

luminous cloud See sheet lightning. ('lū·mə·nəs 'klaʊd)

luminous coefficient [OPTICS] A measure of the fraction of the radiant power of a light source which contributes to its luminous properties, equal to the average of the luminosity function at various wavelengths, weighted according to the spectral intensity of the source. Also known as luminous efficiency. ('lū·mə·nəs ,kō·i·fish·ənt)

luminous efficacy [OPTICS] 1. The ratio of the total luminous flux in lumens emitted by a light source over all wavelengths to the total radiant flux in watts. Formerly known as luminous efficiency. 2. The ratio of the total luminous flux emitted by a light source to the power input of the source; expressed in lumens per watt. ('lū·mə·nəs ,ef·ə·kə·sē)

luminous efficiency See luminous coefficient; luminous efficacy. ('lū·mə·nəs i'fish·ən·sē)

luminous emittance [OPTICS] The emittance of visible radiation weighted to take into account the different response of the human eye to different wavelengths of light; in photometry, luminous emittance is always used as a property of a self-luminous source, and therefore should be distinguished from luminance. Also known as luminous exitance. ('lū·mə·nəs i'mit·əns)

luminous energy [OPTICS] The total radiant energy emitted by a source, evaluated according to its capacity to produce visual sensation; measured in lumen-hours or lumen-seconds. ('lū·mə·nəs 'en·ər·jē)

luminous exitance See luminous emittance. ('lū·mə·nəs 'ek·səd·əns)

luminous flux [OPTICS] The time rate of flow of radiant energy, evaluated according to its capacity to produce visual sensations; measured in lumens. ('lū·mə·nəs 'flʌks)

luminous flux density See illuminance. ('lū·mə·nəs 'flʌks 'den·səd·ē)

luminous intensity [OPTICS] The luminous flux incident on a small surface which lies in a specified direction from a light source and is normal to this direction, divided by the solid angle (in steradians) which the surface subtends at the source of light. Also known as light intensity. ('lū·mə·nəs in'ten·səd·ē)

luminous mass [ASTRON] The mass of a celestial object inferred from its luminosity or the luminosities of its components. ('lū·mə·nəs 'mas)

luminous meteor [METEOROL] According to United States weather observing practice, any one of a number of atmospheric phenomena which appear as luminous patterns in the sky, including halos, coronas, rainbows, aurorae, and their many variations, but excluding lightning (an igneous meteor or electrometeor). ('lū·mə·nəs 'mēd·ē·ər)

