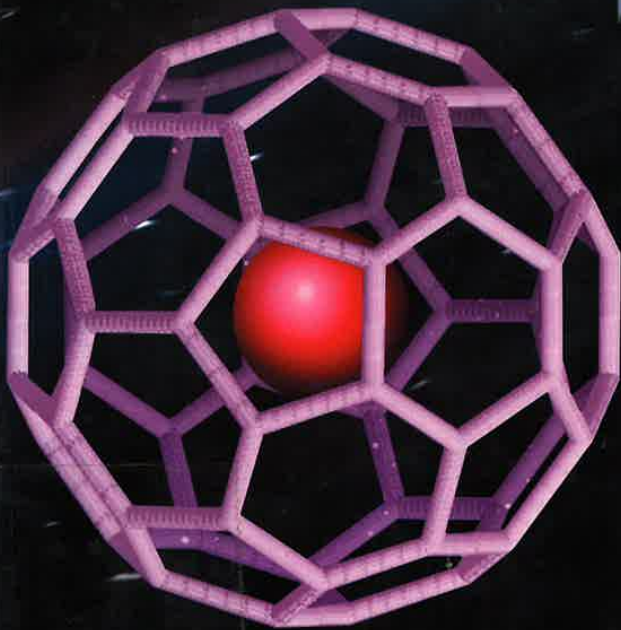


McGraw-Hill
Dictionary of

SCIENTIFIC
and
TECHNICAL
TERMS



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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 Scientific 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,
Sixth Edition**

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currents. **2.** An arrangement of one or more complete, closed paths for electron flow. { i'lek-trik 'sær-kæt }

electric circuit theory See circuit theory. { i'lek-trik 'sær-kæt ,thē-ə-rē }

electric clock [HOROL] **1.** Any clock that is operated by electric power. **2.** Specifically, a clock driven by an alternating-current motor whose current has a definite frequency, controlled at the generator. { i'lek-trik 'kläk }

electric coil See coil. { i'lek-trik 'kõil }

electric comparator [ELEC] A comparator in which movement results in a change in some electrical quantity, which is then amplified by electrical means. { i'lek-trik kãm'par-əd-ər }

electric condenser See capacitor. { i'lek-trik kãn'den-sær }

electric conductor See conductor. { i'lek-trik kãn'dæk-tør }

electric connection [ELEC] A direct wire path for current between two points in a circuit. { i'lek-trik kə'nek-shən }

electric connector [ELEC] A device that joins electric conductors mechanically and electrically to other conductors and to the terminals of apparatus and equipment. { i'lek-trik kə'nek-tør }

electric constant [ELEC] The permittivity of empty space, equal to 1 in centimeter-gram-second electrostatic units and to $10^7/4\pi c^2$ farads per meter or, numerically, to 8.854×10^{-12} farad per meter in International System units, where c is the speed of light in meters per second. Symbolized ϵ_0 . { i'lek-trik 'kãn-stant }

electric contact [ELEC] A physical contact that permits current flow between conducting parts. Also known as contact. { i'lek-trik 'kãn,takt }

electric contactor See contactor. { i'lek-trik 'kãn,tak-tør }

electric control [ELEC] The control of a machine or device by switches, relays, or rheostats, as contrasted with electronic control by electron tubes or by devices that do the work of electron tubes. { i'lek-trik kãn'trõl }

electric controller [ELEC] A device that governs in some predetermined manner the electric power delivered to apparatus. { i'lek-trik kãn'trõl-ər }

electric converter See synchronous converter. { i'lek-trik kãn'vörd-ər }

electric corona See corona discharge. { i'lek-trik kə'rõ-nə }

electric coupling [MECH ENG] Magnetic-field coupling between the shafts of a driver and a driven machine. { i'lek-trik 'køp-liŋ }

electric current See current. { i'lek-trik 'kø-rænt }

electric current density See current density. { i'lek-trik 'kø-rænt ,den:sød-ē }

electric current meter See ammeter. { i'lek-trik 'kø-rænt ,mød-ər }

electric cutout See cutout. { i'lek-trik 'kød,aut }

electric delay line [ELECTR] A delay line using properties of lumped or distributed capacitive and inductive elements; can be used for signal storage by recirculating information-carrying wave patterns. { i'lek-trik di'lä ,lin }

electric desalting [CHEM ENG] A process to remove impurities such as inorganic salts from crude oil by settling out in an electrostatic field. { i'lek-trik dēs'olt-iŋ }

electric detonator [ENG] A detonator ignited by a fuse wire which serves to touch off the primer. { i'lek-trik 'det-ən,äd-ər }

electric dipole [ELEC] A localized distribution of positive and negative electricity, without net charge, whose mean positions of positive and negative charges do not coincide. { i'lek-trik 'dī,põl }

electric dipole moment [ELEC] A quantity characteristic of a charge distribution, equal to the vector sum over the electric charges of the product of the charge and the position vector of the charge. { i'lek-trik 'dī,põl ,mõ-mant }

electric dipole transition [ATOM PHYS] A transition of an atom or nucleus from one energy state to another, in which electric dipole radiation is emitted or absorbed. { i'lek-trik 'dī,põl tran'zish-ən }

electric discharge See discharge. { i'lek-trik 'dis,chärj }

electric-discharge lamp See discharge lamp. { i'lek-trik 'dis-chärj ,lamp }

electric-discharge tube See discharge tube. { i'lek-trik 'dis-chärj ,tüb }

electric flux displacement [ELEC] The electric field intensity multiplied by the permittivity. Symbolized D . Also known

as dielectric displacement; dielectric flux density; displacement; electric displacement density; electric flux density; electric induction. { i'lek-trik dis'pläs-mənt }

electric displacement density See electric displacement. { i'lek-trik dis'pläs-mənt ,den:sød-ē }

electric distribution system See distribution system. { i'lek-trik ,dis-trõ'byü-shən ,sis-təm }

electric double layer [PHYS CHEM] A phenomenon found at a solid-liquid interface; it is made up of ions of one charge type which are fixed to the surface of the solid and an equal number of mobile ions of the opposite charge which are distributed through the neighboring region of the liquid; in such a system the movement of liquid causes a displacement of the mobile counterions with respect to the fixed charges on the solid surface. Also known as double layer. { i'lek-trik 'däb-əl 'lä-ər }

electric doublet See dipole. { i'lek-trik 'däb-lət }

electric drive [MECH ENG] A mechanism which transmits motion from one shaft to another and controls the velocity ratio of the shafts by electrical means. { i'lek-trik 'driv }

electric eel [VERT ZOO] *Electrophorus electricus*. An eellike cypriniform electric fish of the family Gymnotidae. { i'lek-trik 'el }

electric energy [ELECTROMAG] **1.** Energy of electric charges by virtue of their position in an electric field. **2.** Energy of electric currents by virtue of their position in a magnetic field. { i'lek-trik 'en-ər-jē }

electric energy measurement [ELEC] The measurement of the integral, with respect to time, of the power in an electric circuit. { i'lek-trik 'en-ər-jē ,mez-ər-mənt }

electric energy meter [ELEC] A device which measures the integral, with respect to time, of the power in an electric circuit. { i'lek-trik 'en-ər-jē ,mød-ər }

electric engine [AERO ENG] A rocket engine in which the propellant is accelerated by some electric device. Also known as electric propulsion system; electric rocket. { i'lek-trik 'en-jøn }

electric eye See cathode-ray tuning indicator; photocell; phototube. { i'lek-trik 'ī }

electric fence [ENG] A fence consisting of one or more lengths of wire energized with high-voltage, low-current pulses, and giving a warning shock when touched. { i'lek-trik 'fens }

electric field [ELEC] **1.** One of the fundamental fields in nature, causing a charged body to be attracted to or repelled by other charged bodies; associated with an electromagnetic wave or a changing magnetic field. **2.** Specifically, the electric force per unit test charge. { i'lek-trik 'fēld }

electric-field effect See Stark effect. { i'lek-trik 'fēld i'fekt }

electric-field intensity See electric-field vector. { i'lek-trik 'fēld in'ten:sød-ē }

electric-field strength See electric-field vector. { i'lek-trik 'fēld 'strenkth }

electric-field vector [ELEC] The force on a stationary positive charge per unit charge at a point in an electric field. Designated E . Also known as electric-field intensity; electric-field strength; electric vector. { i'lek-trik 'fēld 'vek-tør }

electric filter [ELECTR] **1.** A network that transmits alternating currents of desired frequencies while substantially attenuating all other frequencies. Also known as frequency-selective device. **2.** See filter. { i'lek-trik 'fil-tør }

electric firing mechanism [ORD] Firing mechanism using a firing magnet, battery, or alternating-current power in circuit with an electric primer; one side of the line is connected by an insulated wire to the primer, and the other side is grounded to the frame of the weapon. { i'lek-trik 'fir-iŋ ,mek-ə,niz-əm }

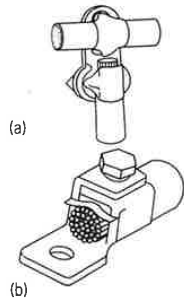
electric fish [VERT ZOO] Any of several fishes capable of producing electric discharges from an electric organ. { i'lek-trik 'fish }

electric flowmeter [ELEC] Fluid-flow measurement device relying on an inductance or impedance bridge or on electrical-resistance rod elements to sense flow-rate variations. { i'lek-trik 'flõ,mød-ər }

electric flux [ELEC] **1.** The integral over a surface of the component of the electric displacement perpendicular to the surface; equal to the number of electric lines of force crossing the surface. **2.** The electric lines of force in a region. { i'lek-trik 'flæks }

electric flux density See electric displacement. { i'lek-trik 'flæks ,den:sød-ē }

ELECTRIC CONNECTOR



Types of electric connectors. (a) T connector. (b) Terminal connector.