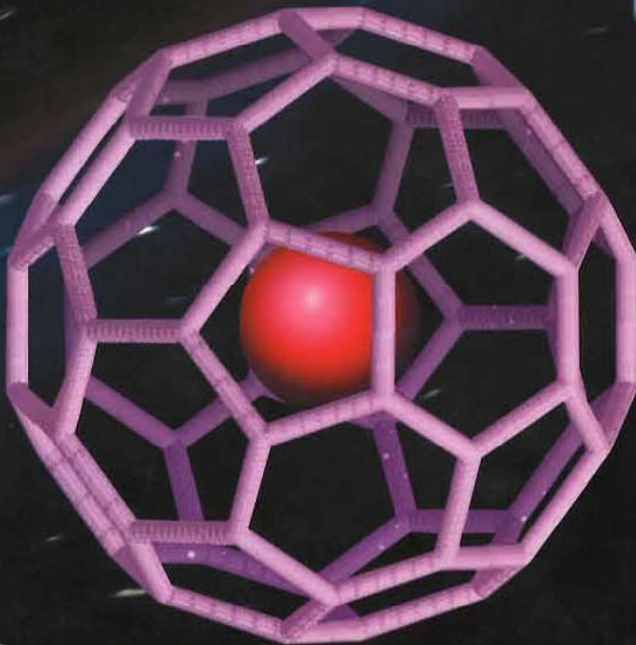


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McGraw-Hill
Dictionary ^{of}
SCIENTIFIC
and
TECHNICAL
TERMS



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,
Sixth Edition**

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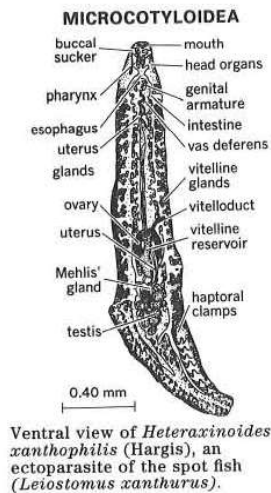
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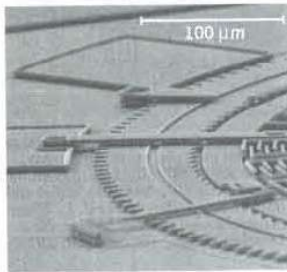
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MICRO-ELECTRO-MECHANICAL SYSTEM



Close-up of a torsional ratcheting actuator fabricated by surface micromachining. (J. Jakubczala, Sandia National Laboratories)

cocci; chemoorganotrophic organisms with respiratory or fermentative metabolism. { 'mī·krō·kāk'sās·ē,ē }

microcode [COMPUT SCI] A code that employs microinstructions; not ordinarily used in programming. { 'mī·krō,kōd }

microcomputer [COMPUT SCI] 1. A digital computer whose central processing unit resides on a single semiconductor integrated circuit chip, a microprocessor. 2. An electronic device, typically consisting of a microprocessor central processing unit, semiconductor memory (RAM), graphics display, and keyboard. Typical configurations also include a hard disk for persistent memory, a compact disk drive, a disk drive which allows removable disks to be used to move data in and out of the machine, and a pointing device. { 'mī·krō·kəm'pyū·ər }

microcomputer development system [COMPUT SCI] A complete microcomputer system that is used to test both the software and hardware of other microcomputer-based systems. { 'mī·krō·kəm'pyū·ər dī'vel·əp·mənt 'sis·təm }

microconsumer See decomposer. { 'mī·krō·kən'sū·mər }

microcontroller [ELECTR] A microcomputer, microprocessor, or other equipment used for precise process control in data handling, communication, and manufacturing. { 'mī·krō·kən'trōl·ər }

microcopy [GRAPHICS] A photographic reproduction that is too small to be read without magnification. { 'mī·krō,kāp·ē }

microcoquina [PETR] A clastic limestone composed wholly or partially of cemented sand-size particles of shell detritus. { 'mī·krō·kō'kē·nə }

Microcotyloidea [INV ZOO] A superfamily of ectoparasitic trematodes in the subclass Monogenea. { 'mī·krō,kād·əl'ōid·ē·ə }

microcoulomb [ELEC] A unit of electric charge equal to one-millionth of a coulomb. Abbreviated μC. { 'mī·krō'kū,lām }

microcrack See microfissure. { 'mī·krō,krak }

microcrystalline [CRYSTAL] Composed of or containing crystals that are visible only under the microscope. { 'mī·krō'krist·əl·ən }

microcrystalline wax [MATER] A petroleum wax containing small, indistinct crystals, and having a higher molecular weight, melting point, and viscosity than paraffin wax; used in laminated paper and electrical coil coating. { 'mī·krō'krist·əl·ən 'waks }

Microcyprini [VERT ZOO] The equivalent name for Cyprinodontiformes. { 'mī·krō·sə'prē,nē }

microcyst [MED] A very small cyst. { 'mī·krō,sist }

microcyte [MED] A red blood cell whose diameter or mean corpuscular volume or both are more than two standard deviations below the normal mean. Also known as microerythrocyte. { 'mī·krō,sit }

microcythemia [MED] Blood characterized by the presence of small red blood cells. { 'mī·krō·sī'thē·mē·ə }

microcytic anemia [MED] Any form of anemia in which small erythrocytes occur in the blood. { 'mī·krō'sīd·ik ə'nē·mē·ə }

microcytosis [MED] A blood disorder characterized by a preponderance of microcytes. { 'mī·krō·sī'tō·səs }

microdactyly [MED] A condition of abnormal smallness of fingers or toes. { 'mī·krō'dak·tə·lē }

microdensitometer [SPECT] A high-sensitivity densitometer used in spectroscopy to detect spectrum lines too faint on a negative to be seen by the human eye. { 'mī·krō,dən·sə'tām·əd·ər }

microdiagnostic program [COMPUT SCI] A microprogram that tests a specific hardware component, such as a bus or store location, for faults. { 'mī·krō,dī·əg'nās·tik 'prō·grām }

microdialysis [ANALY CHEM] A technique for sampling biological systems in which a short length of hollow-fiber dialysis membrane is implanted into any tissue or fluid compartment, and through which compounds in the extracellular fluid are collected for subsequent analysis. { 'mī·krō·dī·əl·ə·səs }

microdiffusimeter [ENG] A type of diffusimeter in which diffusion is measured over microscopic distances, greatly reducing the time required for the measurement and the effects of vibration and temperature changes. { 'mī·krō·dā'fyz·ər }

microdisk [COMPUT SCI] A small floppy disk with a diameter between 3 and 4 inches (7 and 10 centimeters). Also known as microflop disk. { 'mī·krō,disk }

microdisk laser [OPTICS] A very small semiconductor laser

that consists of a quantum well structure formed into a disk, such that total internal reflection of photons traveling around the perimeter of the disk results in high-Q whispering-gallery resonances. { 'mī·krō,disk,lā·zər }

microdissection [BIOL] Dissection under a microscope. { 'mī·krō·dī'sek·shən }

Microdomatacea [PALEON] An extinct superfamily of gastropod mollusks in the order Aspidobranchia. { 'mī·krō·dō·mā'tās·ē·ə }

microearthquake [GEOPHYS] An earthquake with a low intensity, usually less than 3 on the Richter scale. Also known as microquake. { 'mī·krō'ərth,kwāk }

microelectrode [ENG] 1. In biological research, an electrode with a microscopic tip dimension that may be placed adjacent to or inside a cell for the purpose of recording the electric potentials of single cells, passing electrical currents, or injecting electrically charged substances into the cell. 2. In physical chemistry, a minute electrode used to perform electrolysis of small quantities of material. { 'mī·krō·i'lek·trōd }

microelectrolysis [PHYS CHEM] Electrolysis of small quantities of material. { 'mī·krō·i'lek·trāl·ə·səs }

micro-electro-mechanical system [ENG] A system in which micromechanisms are coupled with microelectronics, most commonly fabricated as microsensors or microactuators. Abbreviated MEMS. Also known as microsystem. { 'mī·krō·i'lek·trə·mē'kan·ə·kəl 'sis·təm }

microelectronic circuitry See microcircuitry. { 'mī·krō·i'lek·'trān·ik 'sər·kə·trē }

microelectronics [ELECTR] The technology of constructing circuits and devices in extremely small packages by various techniques. Also known as microminiaturization; microsystem electronics. { 'mī·krō·i'lek·trān·iks }

microelectrophoresis [ANALY CHEM] Direct microscopic observation and measurement of the velocity of migration of ions or other charged bodies through a solution toward oppositely charged electrodes. Also known as optical cytophotometry. { 'mī·krō·i'lek·trə·fə're·səs }

microelement [ELECTR] Resistor, capacitor, transistor, diode, inductor, transformer, or other electronic element or combination of elements mounted on a ceramic wafer 0.025 centimeter thick and about 0.75 centimeter square; individual microelements are stacked, interconnected, and potted to form micromodules. [IND ENG] An element of a work cycle whose time span is too short to be observed by the unaided eye. { 'mī·krō·el·ə·mənt }

microemulsion [MATER] A thermodynamically stable dispersion of two immiscible liquids, stabilized by surfactants; it is typically clear because the dispersed droplets are less than 100 nanometers in diameter. { 'mī·krō·i'məl·shən }

microemulsion flooding See micellar flooding. { 'mī·krō·i'məl·shən 'flōd·iq }

microencapsulation [CHEM ENG] Enclosing of materials in capsules from well below 1 micrometer to over 2000 micrometers in diameter. { 'mī·krō·en·kəp·sə'lā·shən }

microencephaly See micrencephaly. { 'mī·krō·en·sef·ə·lē }

microengineering [ENG] The design and production of small, three-dimensional objects, usually for manufacture in high volumes at low cost. { 'mī·krō·en·jə'nir·iq }

microenvironment [ECOL] The specific environmental factors in a microhabitat. { 'mī·krō·in·vī·ərən·mənt }

microerythrocyte See microcyte. { 'mī·krō·ə'rith·rə·sīt }

microevolution [EVOL] 1. Evolutionary processes resulting from the accumulation of minor changes over a relatively short period of time; evolutionary changes due to gene mutation. 2. Evolution of species. { 'mī·krō·ev·ə'lū·shən }

microfabrication [ENG] The technology of fabricating microsystems from silicon wafers, using standard semiconductor process technologies in combination with specially developed processes. { 'mī·krō·fab·rə'kā·shən }

microfacies [PETR] The composition, features, or appearance of a rock or mineral in thin section under the microscope. { 'mī·krō·fā·shēz }

microfarad [ELEC] A unit of capacitance equal to one-millionth of a farad. Abbreviated μF. { 'mī·krō·fār·əd }

microfauna [ECOL] Microscopic animals such as protozoa and nematodes. { 'mī·krō·fōn·ə }

microfibril [CELL MOL] The submicroscopic unit of a microscopic cellular fiber. { 'mī·krō·fī·brəl }

microfiche [GRAPHICS] A microfilm card or sheet used in