

# **McGraw-Hill Dictionary of Scientific and Technical Terms Fifth Edition**

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On the cover: Photomicrograph of crystals of vitamin B<sub>12</sub>.  
(Dennis Kunkel, University of Hawaii)

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**INTERNATIONAL EDITION**

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**mock silver** [MET] 1. An aluminum alloy containing 5% copper and 10% tin, or 5% copper and 5% silver. 2. A white brass containing 55% zinc and 45% copper. { 'māk 'sil-vər }

**mock sun** See parheliion; parheliion. { 'māk 'sən }

**mock sun ring** See parhelic circle. { 'māk 'sən ,rɪŋ }

**mockup** [ENG] A model, often full-sized, of a piece of equipment, or installation, so devised as to expose its parts for study, training, or testing. { 'māk ,əp }

**MOCVD** See metal-organic chemical vapor deposition.

**modacrylic** [TEXT] Of a synthetic fiber, composed of less than 85% and more than 35% by weight of acrylonitrile units. { 'mōd-ə 'krɪl-ɪk }

**modal class** [STAT] The class that contains more individuals than any other class in a statistical distribution. { 'mōd-əl ,klas }

**modal distortion** See modal noise. { 'mōd-əl dɪ'stɔr-ʃən }

**modal noise** [COMMUN] Interference of a multimode optical communications fiber with a laser light source when a speckle pattern in the light intensity in the fiber alters because of motion of the fiber or changes in the laser spectrum. Also known as modal distortion. { 'mōd-əl 'nɔɪz }

**modal number** [GEN] 1. The typical chromosome number of a taxonomic group. 2. The typical chromosome number of a tumor cell population. { 'mōd-əl ,nəm-bər }

**mode** [COMMUN] Form of the information in a communication such as literal language, digital data, and video. [COMPUT SCI] One of several alternative conditions or methods of operation of a device. [ELECTROMAG] A form of propagation of guided waves that is characterized by a particular field pattern in a plane transverse to the direction of propagation. Also known as transmission mode. [PETR] The mineral composition of a rock, usually expressed as percentages of total weight or volume. [PHYS] A state of an oscillating system that corresponds to a particular field pattern and one of the possible resonant frequencies of the system. [STAT] The most frequently occurring member of a set of numbers. { mōd }

**mode converter** See mode transducer. { 'mōd kən ,vɔrd-ər }

**mode eddies** [OCEANOGR] Densely packed, irregularly oval high- and low-pressure centers roughly 240 miles (400 kilometers) in diameter in which current intensities are typically tenfold greater than the local means. Also known as mesoscale eddies. { 'mōd ,ed-ēz }

**mode filter** [ELECTROMAG] A waveguide filter designed to separate waves of the same frequency but of different transmission modes. { 'mōd ,fɪlt-ər }

**mode jump** [ELECTR] Change in mode of magnetron operation from one pulse to the next; each mode represents a different frequency and power level. { 'mōd ,jʌmp }

**model** [COMPUT SCI] See macroskeleton. [SCI TECH] A mathematical or physical system, obeying certain specified conditions, whose behavior is used to understand a physical, biological, or social system to which it is analogous in some way. { 'mād-əl }

**model atmosphere** [METEOROL] Any theoretical representation of the atmosphere, particularly of vertical temperature distribution. { 'mād-əl 'at-mə ,sfɪr }

**model-based expert system** [COMPUT SCI] An expert system that is based on knowledge of the structure and function of the object for which the system is designed. { 'mād-əl ,bāst 'eksp-ərt ,sɪstəm }

**model basin** [ENG] A large basin or tank of water where scale models of ships can be tested. Also known as model tank; towing tank. { 'mād-əl 'bās-ən }

**model-following problem** [CONT SYS] The problem of determining a control that causes the response of a given system to be as close as possible to the response of a model system, given the same input. { 'mād-əl 'fɔl-ə-wɪŋ ,prɒb-ləm }

**mode-locked laser** [OPTICS] A laser designed so that several modes of oscillation with closely spaced wavelengths, in which the laser would normally oscillate, are synchronized so that a pulse of light, lasting for as little as a picosecond, is generated. { 'mōd ,lɔkt 'lā-zər }

**model reduction** [CONT SYS] The process of discarding certain modes of motion while retaining others in the model used by an active control system, in order that the control system can compute control commands with sufficient rapidity. { 'mād-əl rɪ'dʌk-ʃən }

**model reference system** [CONT SYS] An ideal system whose response is agreed to be optimum; computer simulation in which

both the model system and the actual system are subjected to the same stimulus is carried out, and parameters of the actual system are adjusted to minimize the difference in the outputs of the model and the actual system. { 'mād-əl 'ref-rəns ,sɪstəm }

**model symbol** [COMPUT SCI] The standard usage of geometrical figures, such as squares, circles, or triangles, to help illustrate the various working parts of a model: each symbol must, nevertheless, be footnoted for complete clarification. { 'mād-əl ,sɪm-bəl }

**model tank** See model basin. { 'mād-əl ,tæŋk }

**model theory** [MATH] The general qualitative study of the structure of a mathematical theory. { 'mād-əl ,thē-ə-rē }

**modem** [ELECTR] A combination modulator and demodulator at each end of a telephone line to convert binary digital information to audio tone signals suitable for transmission over the line, and vice versa. Also known as dataset. Derived from modulator-demodulator. { 'mō ,dem }

**modem eliminator** [COMPUT SCI] A device that is used to connect two computers in proximity and that mimics the action of two modems and a telephone line. { 'mō ,dem ə'lim-ə ,nād-ər }

**mode number** [ELECTR] 1. The number of complete cycles during which an electron of average speed is in the drift space of a reflex klystron. 2. The number of radians of phase in the microwave field of a magnetron divided by  $2\pi$  as one goes once around the anode. { 'mōd ,nəm-bər }

**mode of oscillation** See mode of vibration. { 'mōd əv ,əs-ə 'lā-ʃən }

**mode of vibration** [MECH] A characteristic manner in which a system which does not dissipate energy and whose motions are restricted by boundary conditions can oscillate, having a characteristic pattern of motion and one of a discrete set of frequencies. Also known as mode of oscillation. { 'mōd əv vɪ'brə-ʃən }

**moder** [COMMUN] See coder. [GEOL] Humus consisting of plant material that is undergoing alteration from the living to the decayed state and is intermediate in acidity between mor and mull. { 'mōd-ər }

**moderate breeze** [METEOROL] In the Beaufort wind scale, a wind whose speed is from 11 to 16 knots (13 to 18 miles per hour or 20 to 30 kilometers per hour). { 'mād-ər-ət 'brēz }

**moderate gale** [METEOROL] In the Beaufort wind scale, a wind whose speed is from 28 to 33 knots (32 to 38 miles per hour or 52 to 61 kilometers per hour). { 'mād-ər-ət 'gæl }

**moderator** [NUCLEO] The material used in a nuclear reactor to moderate or slow down neutrons from the high velocities at which they are created in the fission process. { 'mād-ər ,rād-ər }

**modern algebra** [MATH] The study of algebraic systems such as groups, rings, modules, and fields. { 'mād-əm 'al-jə-brə }

**modern control** [CONT SYS] A control system that takes account of the dynamics of the processes involved and the limitations on measuring them, with the aim of approaching the condition of optimal control. { 'mād-əm kən'trɒl }

**Mode S** [NAV] An augmentation of the Air Traffic Control Radar Beacon System in which each aircraft is equipped with a transponder that replies when interrogated with a discrete identity code. Also known as ADSEL (in Britain); discrete address beacon system or DABS (in the United States). { 'mōd 'es }

**mode shift** [ELECTR] Change in mode of magnetron operation during a pulse. { 'mōd ,ʃɪft }

**mode skip** [ELECTR] Failure of a magnetron to fire on each successive pulse. { 'mōd ,skɪp }

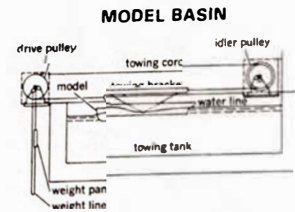
**mode switch** [COMPUT SCI] A preset control which affects the normal response of various components of a mechanical desk calculator. [ELECTR] A microwave control device, often consisting of a waveguide section of special cross section, which is used to change the mode of microwave power transmission in the waveguide. { 'mōd ,swɪtʃ }

**mode transducer** [ELECTR] Device for transforming an electromagnetic wave from one mode of propagation to another. Also known as mode converter; mode transformer. { 'mōd tranz ,dʌ-ʃər }

**mode transformer** See mode transducer. { 'mōd tranz ,fɔr mɔr }

**MODFET** See high-electron-mobility transistor. { 'mād ,fet }

**modification** [ENG] A major or minor change in the design of an item, effected in order to correct a deficiency, to facilitate production, or to improve operational effectiveness. [MET]



Model basin with model towed by falling weight.