

COMPREHENSIVE
DICTIONARY

OF

**ELECTRICAL
ENGINEERING**

EDITOR-IN-CHIEF

Phillip A. Laplante



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manipulated input

bitrary vector of joint velocities in the inverse kinematics problem for redundant manipulators.

manipulated input a quantity influencing the controlled process from outside, available to the controller and used to meet the control objectives; attributes of the inflowing streams of material, energy, or information may serve as manipulated inputs. A manipulated input is defined by a continuous trajectory over given time interval or by a sequence of values at given time instants. Also known as control input.

manipulator workspace a manipulator workspace defines all existing manipulator positions and orientations that can be obtained from the inverse kinematics problem. The lack of a solution means that the manipulator cannot attain the desired position and orientation because it lies outside of the manipulator's workspace.

Manley–Rowe criteria *See* Manley–Rowe relations.

Manley–Rowe relations relations among the intensities of optical fields interacting in a nonlinear material, which can be understood in terms of the discrete nature of the transfer of energy in terms of the emission and absorption of photons.

mantissa the portion of a floating-point number that represents the digits. *See also* floating-point representation.

manually-controlled shunt capacitors a bank of shunt capacitors that are controlled via SCADA signals from an operating center as opposed to local automatic control by voltage sensing.

mapping the assignment of one location to a value from a set of possible locations. Often used in the context of memory hierarchies, when distinct addresses in a level of the hierarchy map a subset of the addresses from the level below.

MAR *See* memory address register.

Marconi, Guglielmo (1874–1937) Born: Bologna, Italy

Marconi is best known for work that led to the development of the commercial radio industry. Marconi's many experiments with radio waves (long wavelength electromagnetic radiation) led to many communications innovations. Marconi traveled to England to find support for his ideas, and there formed the Marconi Wireless Telegraph Company, Ltd. In 1909, Marconi shared the Nobel Prize for physics with K. F. Braun. Marconi's most famous demonstration came in 1901 when he was able to send the first Morse-coded message from the Pondhu, Cornwall, England to St. Johns, Newfoundland, Canada.

Markov model a modeling technique where the states of the model correspond to states of the system and transitions between the states in the model correspond to system processes.

Marx generator a high-voltage pulse generator capable of charging capacitors in parallel and discharging them in series.

maser acronym for microwave amplification by stimulated emission of radiation.

maser amplifier usually refers to a medium that amplifies microwaves by the process of stimulated emission; sometimes refers to amplification of some other field (nonoptical electromagnetic, phonon, exciton, neutrino, etc.) or some other process (nonlinear optics, Brillouin scattering, Raman scattering, etc.).

maser oscillator oscillator usually producing a microwave frequency output and usually based on amplification by stimulated emission in a resonant cavity.

mask (1) in digital computing, to specify a number of values that allow some entities in a