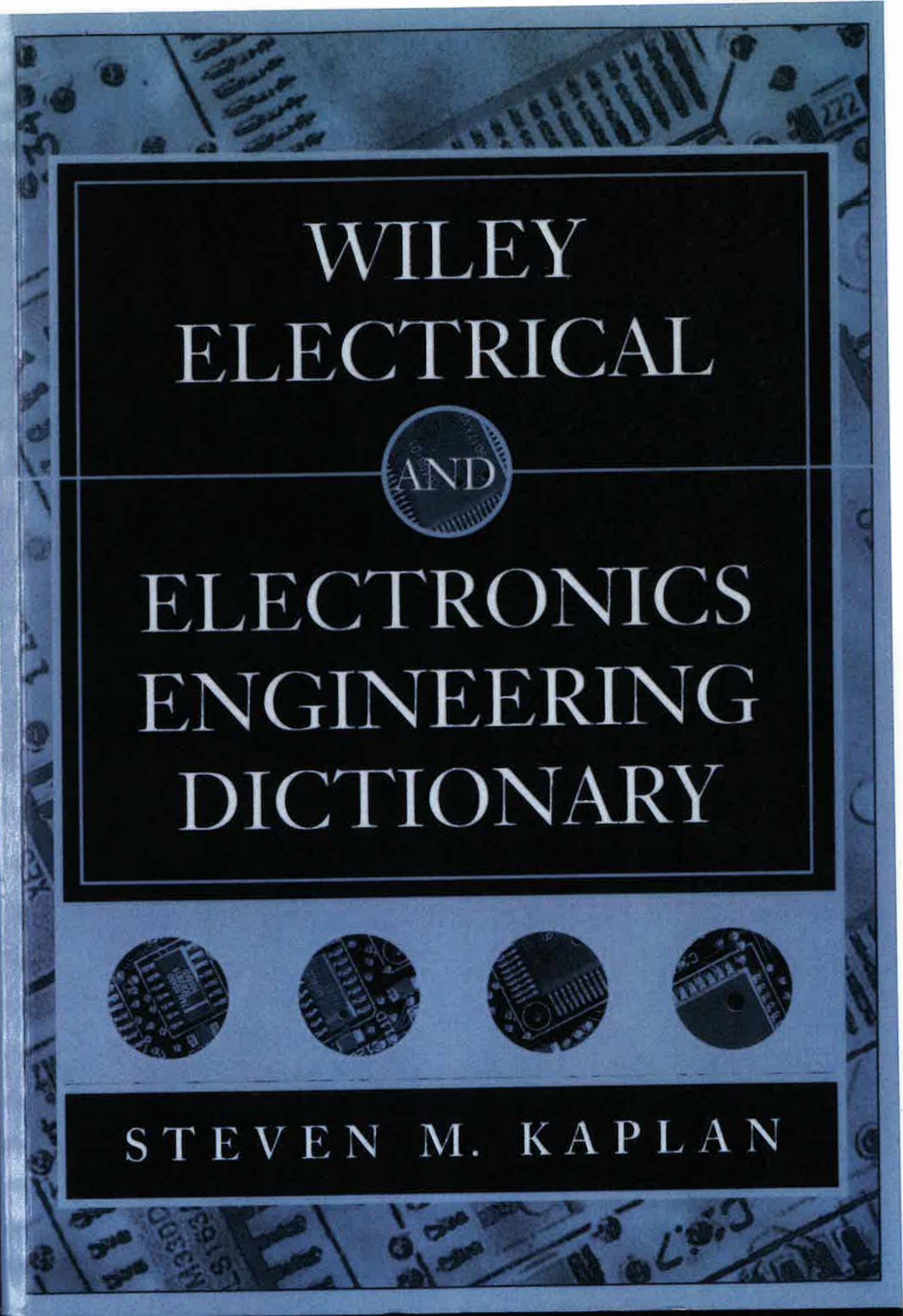




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STEVEN M. KAPLAN

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read-only memory

memory Same as

gh an electrical con-
or, as opposed to an

read-only memory

ROM Same as

PROM.

y to operate.

with and arising from

Electric charge is a
toms, molecules, and
these, and may be
duced by electric
ctricity, while static
charges at rest. Elec-
s of energy, and can
d chemical changes.
y (1). 3. Energy aris-
w or transfer of this
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so called **electric en-**
trical energy gener-
rms of energy, such
Also called **electric**

of applying an elec-
provide a locomotive
ind effect of generat-
instance, the use of
amber. 3. The gen-
electrical energy.

g to electricity, elec-
electrical, electronic,
form is **electr-**.

led image of an elec-

electrodes applied to
differences in electric
Its abbreviation is

s. Also spelled elec-

s a bar-code reader,
optics. Also spelled

optical effect. 1. For a
index under the influ-
effect produced by an
through which light
Kerr effect.

terials, such as trans-
duced by an electric
r effect. Also called
l effect.

displays an **electro-**
y be a liquid crystal,
t an electrical signal
electro-optical mate-

tor which makes use
ce may modulate the
ase of a light beam.

electro-optical Same as **electro-optic**.**electro-optical device** Same as **electro-optic device**.**electro-optical effect** Same as **electro-optic effect**.**electro-optical Kerr effect** Same as **electro-optic Kerr ef-**
fect.**electro-optical material** Same as **electro-optic material**.**electro-optical modulator** Same as **electro-optic modulator**.

electro-optics The study and application of the physical and
optical properties of electron beams under the influence of
electric and/or magnetic fields, in a manner analogous to the
behavior of light beams passing through a refractive medium
such as a lens. Electro-optics also deals with devices and
phenomena incorporating both electronics and optics, as is
the case with photoelectricity, lasers, and fiber-optics. It is
sometimes utilized as a synonym for **optoelectronics**, but
this usage is incorrect. Also called **electron optics**.

electro-osmosis Same as **electroosmosis**.

electroacoustic Pertaining to devices whose operation in-
volves both electric and acoustic energy. Speakers and mi-
crophones are examples.

electroacoustic effect The development of a DC voltage in a
crystalline or metallic material caused by acoustic waves
traveling parallel to its surface. Also known as **acoustoelec-**
tric effect.

electroacoustic transducer 1. A device which transforms
acoustic energy into electric energy. For example, a micro-
phone. 2. A device which transforms electric energy into
acoustic energy. For example, a speaker.

electroacoustics The science that deals with the transforma-
tion of acoustic energy into a corresponding electric energy,
and vice versa. Speakers, microphones, and amplifiers are
examples of devices used in this field.

electroanalysis 1. The use of electrolysis for chemical analy-
sis. 2. The use of electrochemical methods for chemical
analysis.

electrobiolgy The science pertaining to electrical phenomena
in living organisms. This includes, for instance, the study of
bioelectricity.

electrocardiogram A graphical recording of the variations in
the electrical activity of the heart. An **electrocardiograph**
is used to detect and record such activity. Its abbreviation is
ECG, or EKG. Also called **cardiogram**.

electrocardiograph An instrument which detects and records
variations in the electrical activity of the heart. An **electro-**
cardiogram is the graphical recording of this activity. Its
abbreviation is ECG, or EKG. Also called **cardiograph**.

electrocardiography The technique employed to obtain an
electrocardiogram. Electrocardiography utilizes electrodes
applied to various parts of the body, which detect the elec-
trical signals produced by the heart. Also called **cardiogra-**
phy.

electrocautery The use of an electrically-heated probe to
destroy tissue. For instance, one or more platinum wires
may be heated to a very high temperature by a direct current
or an alternating current.

electrochemical Pertaining to **electrochemistry**.

electrochemical cell A cell which consists of two electrodes
immersed in an electrolyte, and in which a chemical reaction
occurs that either generates or consumes electrical current.
When a current is generated it is a voltaic or galvanic cell,
and when current is consumed it is an electrolytic cell.

electrochemical deposition The use of electrolysis for the
formation of a metallic layer on a substrate. May be used,
for instance, to electroplate.

electrochemical equivalent For an electrolytic solution
through which one coulomb of current is passed, the mass,
in grams, of any chemical substance produced or consumed.

It may refer, for instance, to the mass of a metal deposited
during electroplating.

electrochemical machining The process of removing a metal
or alloy from a material, through electrolytic action. The
shape of the cathode determines the final shape of the mate-
rial. It is the reverse of electroplating. Used, for instance, to
remove excess metal from an otherwise finished piece. Its
abbreviation is ECM. Also called **electrolytic machining**.

electrochemical power Electric energy derived from the
conversion of chemical energy. For example, the power ob-
tained from a galvanic cell.

electrochemical process 1. A chemical process which gives
rise to an electric current. This occurs, for instance, in a
galvanic cell. 2. A **process** in which an electric current gives
rise to a chemical process. This occurs, for instance, in elec-
trolysis.

electrochemical series Also called **electromotive series**. 1. A
series of elements listed in the order of their relative ten-
dency to lose electrons. The greater the tendency to lose
electrons, the higher on the list. Highly reactive metals such
as lithium, potassium, and calcium are at the top of such a
list, while inert metals such as silver, platinum, and gold are
at the bottom of it. Hydrogen is arbitrarily set as the zero
point. 2. An **electrochemical series** (1) listing only metals.

electrochemical transducer 1. A transducer that converts an
electrical quantity into a chemical change. 2. A transducer
that converts a chemical change into an electrical quantity.

electrochemiluminescence Also called **electrogenated**
luminescence. 1. The emission of light as a consequence of
a transformation of chemical energy into electric energy. 2. The
emission of light as a consequence of a transformation of
electric energy into chemical energy.

electrochemistry The science that pertains to the electrical
effects of chemical phenomena, and to the chemical effects
of electrical phenomena. Also, all that pertains to the trans-
formation of chemical energy into electrical energy, and
vice versa. Myriad processes involve electrochemistry, in-
cluding electrolysis, chemical bonding, electrometallurgy,
bioelectricity, and so on.

electrochromic display A passive solid-state display which
incorporates a material whose light-transmitting and light-
reflecting characteristics are controlled by an electric field.

electrocoagulation The use of a high-frequency electric cur-
rent to destroy tissue, or to coagulate blood.

electrocochleography A technique for the measurement of
electrical activity in the inner ear resulting from sound stim-
uli.

electrocute To produce death by means of an **electric shock**.
May also refer to a severe injury resulting from an electric
shock.

electrocution An **electric shock** producing death. May also
refer to an electric shock resulting in a severe injury.

electrode A conductor which serves to deliver, receive, col-
lect, emit, deflect, or control electric charge carriers. An
electrode provides the path for current entering or leaving a
medium such as a dielectric, electrolytic solution, semicon-
ductor, gas, or vacuum. In an electron tube or electrolytic
cell, for instance, the anode is the positive electrode, while
the cathode is the negative electrode. It is often a metal, and
may consist, for instance, of a wire, grid, plate, or region.

electrode admittance A measure of the ease with which AC
flows through an electrode. It is the reciprocal of **electrode**
impedance.

electrode capacitance The capacitance between an electrode
and a reference, such as ground or all other electrodes con-
nected together.

electrode characteristic A curve or graph representing the
relationship between the electrode current and the electrode
voltage.