Polarities

Webster's Quotations, Facts and Phrases

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Preface

Ever need a fact or quotation on polarities? Designed for speechwriters, journalists, writers, researchers, students, professors, teachers, historians, academics, scrapbookers, trivia buffs and word lovers, this is the largest book ever created for this single word. It represents a compilation from a variety of sources with a linguistic emphasis on anything relating to the term "polarities," including non-conventional usage and alternative meanings which capture ambiguities. The entries furthermore cover all parts of speech (noun, verb, adverb or adjective usage) as well as use in modern slang, pop culture, social sciences (linguistics, history, geography, economics, sociology, political science), business, computer science, literature, law, medicine, psychology, mathematics, chemistry, physics, biology and other physical sciences. This "data dump" results in many unexpected examples for polarities, since the editorial decision to include or exclude terms is purely a linguistic process. The resulting entries are used under license or with permission, used under "fair use" conditions, used in agreement with the original authors, or are in the public domain. At the end of each entry, the following codes are used to identify each source: [W] signifies Webster's Online Dictionary, www.websters-online-dictionary.org; [WU] Webster's Unabridged Dictionary, version published 1913 by the C. & G. Merriam Co. Springfield, Mass. under the direction of Noah Porter, D.D., LL.D; [WN] are sourced from WordNet 1.7.1 Copyright © 2001 by Princeton University, all rights reserved. All entries marked [WP] are adapted from articles created by contributors to Wikipedia.org, the free encyclopedia under a copyleft GNU Free Documentation License (GFDL) based on the headword. Please note that these entries are not full articles. For the full article associated with a given Wikipedia headword, the reader can simply go to www.wikipedia.org or www.websters-online-dictionary.org and type in the name of the topic to better understand the context of the entry; passages attributed to Wikipedia are exempt from any compilation or other copyright held by this book and can be freely used under the GFDL found at www.wikipedia.org. The full GFDL is reproduced at the end of the book before the index, and applies to each Wikipedia headword. For all of the sources, the original authors holding copyright retain any copyrights. Proceeds from this book are used to expand the content and coverage of Webster's Online Dictionary (www.websters-online-dictionary.org).

Philip M. Parker
INSEAD Chaired Professor of Management Science
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Familiar Quotations

Polarities

It is the stretched soul that makes music, and souls are stretched by the pull of opposites -- opposite bents, tastes, yearnings, loyalties. Where there is no polarity --where energies flow smoothly in one direction --there will be much doing but no music.

–Eric Hoffer

The loss of sex polarity is part and parcel of the larger disintegration, the reflex of the soul's death, and coincident with the disappearance of great men, great deeds, great causes, great wars, etc.

–Henry Miller

Use in Literature

Polarities

You obtain none but dead substances, from which you have driven the unknown force that holds in check the decomposition of all things here below, and of which cohesion, attraction, vibration, and polarity are but phenomena.

–Honoré de Balzac in *Seraphita (tr Katharine Prescott Wormeley).*

But when we speak of two different things which have a common relation external to themselves, then it is not the things but their relations which have the polarity.

–Carl von Clausewitz in *On War, vol 1.*

In a battle both sides strive to conquer; that is true polarity, for the victory of the one side destroys that of the other.

–Carl von Clausewitz in *On War, vol 1.*

Polarity therefore lies in that to which both bear a relation, in the decision, but not in the attack or defence itself.

–Carl von Clausewitz in *On War, vol 1.*

The principle of polarity is only valid when it can be conceived in one and the same thing, where the positive and its opposite the negative completely destroy each other.

–Carl von Clausewitz in *On War, vol 1.*

We see, therefore, that the impulsive force existing in the polarity of interests may be lost in the difference between the strength of the offensive and the defensive, and thereby become ineffectual.

–Carl von Clausewitz in *On War, vol 1.*

A flash of lightning has turned at once the polarity of the compass needle: and so, perhaps, now and then, but as rarely, a violent motive may revolutionize a man's opinions and professions.

–Samuel Taylor Coleridge in *Poems of Coleridge.*

Polarity, Moral Law of.

–Samuel Taylor Coleridge in *Specimens of the Table Talk of S.T.Coleridge.*

The Chinese were early acquainted with the polarity of the loadstone, and used the compass in journeys by land long before that instrument was known in Europe.

–George Park Fisher in *Outline of Universal History.*

It was perceptible, even there, in the dark old parlor, in the inevitable polarity with which his eyes were attracted towards the quivering play of sunbeams through the shadowy foliage.

–Nathaniel Hawthorne in *House of the Seven Gables.*

I wish indeed those eyes could see within this shell of mine and tell what it is that twists my heart, physically turns it on its axis, so that its polarity is changed.
–Franklin K. Lane in *Letters of Franklin K. Lane.*

Disease is disturbed polarity.
–Henry Lindlahr in *Nature Cure.*

Health is satisfied polarity, that is, the balancing of the positive and negative elements in harmonious vibration.
–Henry Lindlahr in *Nature Cure.*

The swaying to and fro of the positive and the negative, the desire to balance incomplete polarity, constitutes the very ebb and flow of life.
–Henry Lindlahr in *Nature Cure.*

If the direction is reversed, the polarity will also be reversed.
–Dyer and Martin in *Edison, His Life and Inventions.*

If the direction of flow of current be reversed, by reversing the battery, the electromagnetic polarity also reverses and the end of the permanent magnet swings over to the other side. This is shown in the two figures of Fig.
–Dyer and Martin in *Edison, His Life and Inventions.*

Here was a curiosity, indeed; a small, insignificant and unattractive stone possessed of strong magnetic polarity, a property of electricity that is as mysterious and incomprehensible as is electricity itself.
–Joseph A. Munk in *Arizona Sketches.*

In experimenting with the stuff he found that it was not only highly magnetic, but also possessed polarity in a marked degree; and was entirely different from the true meteorite.
–Joseph A. Munk in *Arizona Sketches.*

The polarity of the bar only shows itself at the ends, where the molecular poles are, so to speak, free.
–John Munro in *The Story Of Electricity.*

But the improvements which took place in the art of navigation, the more accurate measurement of time, and, above all, the discovery of the polarity of the magnet, greatly advanced the cause of geographical knowledge.
–William H. Prescott in *History of the Conquest of Peru.*

Polarity, Vochting on.
–A.C. Seward in *Darwin and Modern Science.*

This is an unconvincing conclusion, as nothing can be deduced from our present knowledge as to the causes which led up to polarity.
–A.C. Seward in *Darwin and Modern Science.*

The fixed polarity of cuttings from full grown stems cannot be destroyed; it is the expression of previous development.
–A.C. Seward in *Darwin and Modern Science.*

Vochting speaks of polarity as a fixed inherited character.
–A.C. Seward in *Darwin and Modern Science.*

He proved that the direction of the rotation depends upon the polarity of his magnet; being reversed when the magnetic poles are reversed.
–John Tyndall in *Faraday as a Discoverer.*

This theory of reversed polarity, however, does not appear to have ever laid deep hold of Faraday's mind; and his own experiments failed to give any evidence of its truth.
–John Tyndall in *Faraday as a Discoverer.*

The most perplexing of those facts were shown to result from the action of mechanical couples, which the proved polarity both of magnetism and diamagnetism brought into play.

–John Tyndall in *Faraday as a Discoverer*.

Then, he agrees with Mr. Darwin, that the law of vital polarity or 'heredity,' as he calls it, may come in and play its part towards effecting evolution, or variability, in both animal and vegetal organisms, but not before.

–R.W. Wright in *Life: Its True Genesis*.

Those who cling to the cosmic illusion must accept its essential law of polarity: flow and ebb, rise and fall, day and night, pleasure and pain, good and evil, birth and death.

–Paramhansa Yogananda in *Autobiography of a Yogi*.

The entire phenomenal world is under the inexorable sway of polarity; no law of physics, chemistry, or any other science is ever found free from inherent opposite or contrasted principles.

–Paramhansa Yogananda in *Autobiography of a Yogi*.

Thus was expressed the duality or polarity which underlies the phenomenal worlds.

–Paramhansa Yogananda in *Autobiography of a Yogi*.

Nonfiction Usage

Patent Usage

A Polymer with Superior Polar Retention for Sample Pretreatment: Patented by Krishana Kallury, David C. Jones and Vipul J. Shah on May 13, 2003. Abstract: A polymeric sorbent that can be employed in the extraction and purification of polar and nonpolar molecules from a complex media (e.g. pharmaceuticals from biological matrices) by solid phase extraction (SPE). The sorbent exhibits a strong capacity for the retention of polar molecules and can facilitate the recovery of compounds possessing a range of polarities while furnishing clean extracts showing low ion suppression. The polymer is wettable and remains wetted over long periods of time.

AC or bidirectional circuit utilizing unipolar capacitors: Patented by Tai-Her Yang on December 8, 1997. Abstract: A bipolar circuit, i.e., a circuit in which currents can flow in two directions, utilizes unipolar capacitors, i.e., capacitors in which the capacitance depends on the direction of current flow. The unipolar capacitors are connected in parallel with diodes having the same polarities as the capacitors to which they are connected, and the diode/capacitor combinations are connected in series so that the polarities of the respective combinations are mutually opposite.

Actuator: Patented by Tetsuo Muraji on June 9, 2000. Abstract: In an electromagnetic actuator wherein a rotatable rotor and at least one magnetomotive force source are integrally incorporated through a magnetic path, magnets 5-1 and 5-2 magnetized with opposite polarities are provided on a part of the peripheral surface of the rotor 4. Three pole pieces 12, 13 and 14 are provided on the peripheral edge of an opening in which the rotor 4 is provided. Connecting paths 15, 16 and 18 are provided for each pair of adjacent pole pieces.

Apparatus and method for controlling contrast in a dot-matrix liquid crystal display: Patented by Dean S. Irwin on June 6, 1998. Abstract: An apparatus and method for controlling the contrast in a dot-matrix liquid crystal display (LCD) is provided wherein the voltages applied to the electrodes is phase shifted. The phase shifted electrode voltages avoids the problem that rows of the dot-matrix LCD may have long periods when the voltage on the front electrode and the back electrode are different polarities so that the contrast of the dot-matrix LCD across the rows is improved.

Brushless electric motor: Patented by Guastadini Fausto on May 3, 1990. Abstract: The pulsating current brushless electric motor includes a permanent magnet rotor rotating in a stator and having numerous circumferentially adjacent polarities in

corresponding opposition. The stator contains slots positioned at a uniform reciprocal distance from the pertaining field windings. The rotor performs a keyed rotation on a particular shaft which includes known optical, magnetic or similar devices for the operational detection of its angular position, in combination with electronic circuits which are preset to the distribution of the electric current in the windings.

Capacitive remote vehicle starter: Patented by Gordon L. Kelling on March 1, 2001. Abstract: A remote vehicle starter with a capacitor for starting a vehicle by electrically connecting the vehicle starter directly or via the vehicle battery. The vehicle starter capacitor may be connected to a power source during a starting procedure, thereby remaining in a charged state and more effectively starting the vehicle. Optional circuitry, e.g., activating lights and a buzzer, may be present to warn the operator that incorrect vehicular and capacitive polarities have been mated, before the capacitor is discharged.

Circuit for Energizing Eas Marker Deactivation Device with Dc Pulses of Alternating Polarity: Patented by Ronald B. Easter on August 6, 1999. Abstract: A device for deactivating magnetomechanical EAS markers includes a storage capacitor (12) and a coil (10) for generating a deactivation field. A bridge arrangement of four switches (SW1–SW4) interconnects the coil (10) with the storage capacitor (12) and with circuit ground. The switches are controlled to apply a train of DC pulses to the coil (10) such that the pulses have alternating polarities and decreasing amplitudes.

CMOS semiconductor device with improved layout of transistors near LCD drive terminals: Patented by Toshihide Tsuboi on November 4, 1996. Abstract: An improved layout of transistors near LCD drive terminals in a CMOS semiconductor device to reduce a chip size without damaging resistances against electrostatic destruction and latch-up. MOSFETs whose sources are connected to neither an electric source nor a ground are selectively arranged between two protective diffusion layers having different polarities, connected to a terminal.

COMMUNICATION APPARATUS FOR GENERATING A CALL SIGNAL FROM A TELEPHONE SET TO A DATA TERMINAL: Patented by Shoji Suzuki on March 1, 1989. Abstract: A call signal generating circuit includes a DC/DC converter, an ON/OFF control unit, including a control circuit and a phototransistor, for ON/OFF-controlling an output voltage from the DC/DC converter, and a polarity inverter cooperating with the control circuit, for switching polarities of an ON/OFF-controlled voltage. The ON/OFF timings of the ON/OFF control unit and a polarity switching timing of the polarity inverter are adjusted to generate a call signal having an arbitrary frequency.

Composite of pleated and nonwoven webs, method and apparatus for the electrostatic charging of same: Patented by Larry C. Wadsworth, Oldrich Jirsak and Peter Ping-yi Tsai on July 6, 1999. Abstract: A web or film is electrostatically charged by sequentially subjecting the web or film to a series of electric fields such that adjacent electric fields have substantially opposite polarities. Both a method and apparatus are disclosed for charging the web or film.

Connector ports for an implantable defibrillator: Patented by Theodore P. Adams on November 3, 1993. Abstract: A defibrillator having a connector utilizing a plurality of ports aligned therein to accommodate sensing leads, and positive and negative defibrillator

electrode leads. The positive defibrillator leads are internally connected in common and can facilitate the use of two positive defibrillator leads. Alternative embodiments illustrate methods of having different post polarities for use in situations where having different electrode polarities is beneficial. Other alternative embodiments illustrate methods for limiting current or EMF through one of the commonly wire defibrillator ports.

CURRENT-CARRYING LEAD FORMED OF A CERAMIC SUPERCONDUCTIVE MATERIAL CARRIED BY A SUPPORT: Patented by Chizuru Suzawa on March 1, 1988. Abstract: A current-carrying lead that may be connected between a source of current and a superconducting device and which comprises a ceramic superconductor and a support made of an insulator, a nonmagnetic metal or a good electrical conductor. The lead may be contructed to conduct currents having a single or dual polarities.

D/A conversion circuit: Patented by Hiroyuki Takahashi on November 2, 1989. Abstract: A D/A conversion circuit is provided in which the polarities of a series of input digital data are reversed with every other data block, and the original digital data and the reversed digital data are alterntely D/A converted. An output analong signal is obtained by subtraction between the two D/A converted analog signals. With the above-mentioned arrangement, the D/A conversion circuit has a dynamic range equivalent to that using two D/A converters even with a single D/A converter.

Decorative magnetic collar stay: Patented by Arthur William Barnes on October 1, 2003. Abstract: This invention relates to a novel design of decorative, detachable/attachable magnetic collar stay devices to be used on the collars of sports shirts. The magnetic portions of the device are arranged so that the top portion and bottom portion of the device have opposite polarities from each other. The bottom portion is enabled to receive collar stays of various lengths. The outward surface of the top portion has a relatively flat surface enabled for the affixing of a decorative element.

DEFLECTION YOKE FOR COLOR CRT: Patented by Masanobu Honda and Toshio Kuramoto on August 1, 1990. Abstract: The constitutional body of the deflection yoke of the present invention comprises a vertical deflection coil which are constituted with two sets of coils two pairs of one for generating a pincushion magnetic field and one for generating a barrel magnetic field, and by connecting, to one set thereof, one set of diodes connected with each other, with the respective polarities of the diodes being opposite to each other, in parallel, the occurrence of inverse trilemma is substantially prevented.

DEVELOPING APPARATUS: Patented by Takahiro Kubo and Hatsuo Tajima on June 1, 1988. Abstract: A developing apparatus wherein a magnet is stationarily disposed within a sleeve for carrying a developer. Adjacent an outer periphery of the magnet, only two magnetic poles having different polarities. They are diametrically opposed with respect to a center of the sleeve. One of the magnetic poles form a magnetic field in the developing zone, whereas the other magnetic pole forms a magnetic field in the zone for regulating the thickness of the layer of the developer on the sleeve.

Direct hair dye compositions and methods containing novel anthraquinone mixtures: Patented by James S. Anderson on July 1, 1997. Abstract: An anthraquinone mixture comprising three 1,4-hydroxyalkylamino-

anthraquinone derivatives, wherein two of the anthraquinone compounds in the mixture are symmetric and the other anthraquinone compound is asymmetric, and wherein each of the anthraquinone compounds has similar polarities. The anthraquinone mixtures are used in compositions and methods for the direct dyeing of keratinous fibers, particularly human hair on the head.

Dispensing device producing multiple comminutions of opposing polarities: Patented by Ronald Alan Coffee on January 4, 1997. Abstract: A device for comminuting a liquid, which produces at least two sprays of droplets formed by electrohydrodynamic comminution, the device being arranged so that in use sprays of opposing polarity are formed which are substantially admixed after formation, so as to provide a comminution having a residual electrical charge.

Driving circuit for liquid crystal display apparatus: Patented by Masatomo Hayashi and Taiji Iizuka on July 3, 1990. Abstract: A display circuit for a simple matrix type liquid crystal display apparatus which is multiduty. The picture element data of one line portion is sequentially output through the segment driver into one electrode contacting the liquid crystal. The scanning pulses are sequentially output through the command driver into the other electrode contacting the liquid crystal. The driving circuit further reverses the polarities of the outputs at a constant period with an alternating signal, so as to drive the respective liquid crystal.

Driving device for oscillatory actuator: Patented by Hiromi Kusakabe on November 3, 2002. Abstract: A driving device for an oscillatory actuator in which a FLL (Frequency Locked Loop) is employed for detecting an electromotive force generated in a driving coil resulting from mechanical oscillation during a period in which no driving current is supplied to the oscillatory actuator, and for controlling an oscillation frequency on the basis of a relative time ratio between positive and negative polarities of the electromotive force to thereby pull a driving frequency into a neighborhood of a self-resonance frequency of the oscillatory actuator.

Driving system for active matrix liquid crystal display: Patented by Yen-Chen Chen on January 8, 1992. Abstract: A driving system for matrix liquid crystal display in which the picture elements in adjacent rows and/or adjacent columns are applied with signals of opposite polarities. These polarities are reversed for every other field of a picture frame. Such a system reduces flicker and cross-talk. The system is implemented by interleaving the precharging and charging signals of adjacent picture elements.

Dual coil pick-up assembly for a springed musical instrument: Patented by Donald A. Lace Sr. and Dorothy Lace on January 4, 1993. Abstract: A dual coil pick-up assembly for a stringed musical instrument having a plurality of moveable strings includes a case having a longitudinal channel with first and second sections. The pick-up assembly also includes first and second magnet structures disposed in the first and second sections having opposite polarities and a coil structure disposed in the first and second sections of the channel for eliminating hum in the pick-up assembly due to stray magnetic fields.

Electric rotary machine and power generation systems using the same: Patented by Houng Joong Kim and Hiromi Inaba on November 6, 2001. Abstract: The present invention provides an electric rotary machine including a rotor having a field magnet provided on a shaft, the field magnet having magnetic poles of sequentially different

polarities arranged in a rotational direction, a second field magnet with magnetic poles of sequentially different polarities arranged in a rotational direction wherein the second field magnet is rotatable on the shaft and displaced axially with respect to the first field magnet.

Electrical discharge machining fine finish circuit with symmetrical waveform in both polarities: Patented by Kuang-Ta Ho and Randall C. Gilleland on August 1, 1986. Abstract: An ED machining circuit which is operable at negative polarity and at positive polarity. A push pull circuit is included to provide a symmetrical waveform with either polarity. Switching control of the main switching transistor is provided through a microprocessor.

Electromagnetic pickup for an electric stringed instrument: Patented by Kenji Tumura on July 2, 1994. Abstract: An electromagnetic pickup for an electric stringed instrument has, two parallel permeability plates placed perpendicular to strings; a permanent magnet provided between the two permeability plates in parallel to strings; and a coil wound around the permanent magnet. The plate permanent magnet is in contact with the permeability plates in such a manner that the portions of the permanent magnet that contact the permeability plates have oppsite polarities.

Electrostatic cleaning belt brush: Patented by Bruce E. Thayer on September 8, 1999. Abstract: An electrically biased cleaning belt brush removes oppositely biased particles from a surface. The belt brush, which is entrained about supporting members, includes a substrate to which is attached a multiplicity of conductive brush fibers. Particles adhering to the conductive fibers are removed from the brush fibers at a detoning station. The cleaning belt brush is biased to alternating regions of positive and negative polarities.

Electrostatic painting method wherein multiple spray stations having alternating polarities are used to minimize the residual charge on a plastic substrate: Patented by Vijay Krish, Aris Nikolaidis and Jerry Boeck on July 5, 1994. Abstract: A method and apparatus for electrostatically coating a non-conductive article. The article is passed through multiple stations where electrostatically charged liquid coatings are applied to the article. Adjacent stations have opposite polarity and neutralize the residual electric charge buildup from the preceding station.

Electrostatic separation of plastic materials: Patented by Martin H. Beck, George F. Rollend, Richard C. Nichols and John Muszynski on October 6, 1990. Abstract: An apparatus and associated method of separating mixed fragments of different plastic materials, in which the materials to be separated are capable of carrying electrostatic charges of opposite polarities. The mixed charged fragments are given an induced electrostatic charge and are then exposed to electrostatic field of opposite polarities where they are separated by being allowed to migrate toward their respectively oppositely charged fields. The separated material fragments are then collected.

Ferroelectric liquid crystal display: Patented by Suk Won Choi and Su Seok Choi on June 9, 2001. Abstract: A ferroelectric liquid crystal display having alignment films with different surface polarities. The alignment films induce an internal electric field through the liquid crystal. Because of the induced internal electric field, initial liquid crystal alignment, and subsequent liquid crystal alignments, can

be performed without an externally applied electric field.

Head-mount display with opposite polarity reversal for left and right sides: Patented by Yasuyuki Yamazaki on December 3, 1994. Abstract: A liquid crystal display device and a method of driving the same comprising first and second XY-matrix liquid-crystal display panels provided with a switching device every pixel, and liquid crystal drives to supply video signals whose polarities are inverted every predetermined cycle to first and second liquid-crystal display panels so that the polarities of video signals supplied to the first and second liquid-crystal display panels simultaneously may be reverse to each other.

HIGH SPEED CMOS TRANSITION DETECTOR CIRCUIT: Patented by Shailesh R. Kadakia and David D. Wilmoth on July 1, 1989. Abstract: A high speed circuit for detecting input or address transitions at a terminal of an integrated circuit logic array. The circuit utilizes N-channel leaker transistors to control the widths of and P-channel transistors to control the risetimes of output pulses and utilizes inverters and OR circuits to sense input or address transitions of both polarities.

Hyperthermia device: Patented by Youji Kotsuka on June 9, 1991. Abstract: A hyperthermia device includes a pair of magnetic poles for applying an alternating magnetic field in a body to be heated, these two magnetic poles being laterally arranged on the surface of the body and having time varying polarities opposite to each other, and allowing a line of magnetic force including a component perpendicular to the surface of the body in the vicinity of these magnetic poles.

Image heating device which prevents temperature rise in non-paper feeding portion, and heater: Patented by Koichi Okuda, Tatsunori Ishiyama and Takashi Shibuya on January 1, 1997. Abstract: An image heating device of film heating type is provided with a heater, and a film which is moved while one surface thereof contacts the heater, and the other surface thereof contacts a recording member which supports an image. The heater is provided with a resistor for generating heat upon energization, and an energization electrode arranged to alternately have different polarities in a direction perpendicular to a feeding direction of the recording member.

Kinmen Type of Integrated Hydrologic Circuits: Patented by Kenneth Hsu on August 17, 2000. Abstract: The integrated hydrologic circuit comprising at least one hydrologic cell having a pair of polarities as hydropotentials with a porous medium therebetween and having means for keeping the positive polarity high and means for keeping the negative polarity low by feeding respectively pumping out water to respectively from said polarities.

Liquid crystal display device: Patented by Yasuhiro Matsushima and Sunao Etoh on September 9, 1998. Abstract: A liquid crystal display device includes a liquid crystal between a substrate having gate buslines, source buslines, switching elements, pixel electrode array, gate driver, source driver, etc., and a substrate having a counter electrode, etc. In this liquid crystal display device, the gate driver performs simultaneous two-line scanning by applying a scanning signal to two gate buslines simultaneously. The source driver feeds video signals of opposite polarities to adjacent source buslines, respectively. The video signals are inverted every vertical scanning period.

Liquid wave display ornament: Patented by Vincent K. Lee on November 2, 1991. Abstract:

Waves are imparted to liquids of different specific gravities having an ornament floating therein by a movable diaphragm provided with a magnet alternatively exposed to additional magnets of different polarities to alternatively attract and repulse the magnet, thereby causing the diaphragm to create waves in the liquids.

Loudspeaker: Patented by Rintaro Kohara, Takeshi Yoshimura and Hidetoshi Shirakawa on July 1, 1994. Abstract: A loudspeaker has two magnets disposed directly with respect to voice coils for generating a repulsion magnetic field at the voice coils, without interposition of yoke but with mutually repulsing magnetic polarities of the magnets, and a diaphragm directly coupled at inner peripheral edge substantially to the center of outer periphery of the voice coils. Driving force is transmitted highly efficiently from the voice coils to the diaphragm, and the loudspeaker can be sufficiently minimized in the thickness and weight.

Magnetic coupler: Patented by William P. Schmidt on December 9, 1996. Abstract: A magnetic coupler for use in semi-trailer rigs includes a contact member and a receiving member, the contact member having at least one biased contact which seats in a seat formed in the receiving member, the seat having an electrical conductor disposed therewithin. A member has a peripheral ring of opposite magnetic polarities in order to ensure magnetic attraction therebetween. Cooperating projection and keyway may be formed on the peripheral rings to assure proper alignment between the contact member and the receiving member.

Magnetic recording medium comprising multilayered carbon-containing protective overcoats: Patented by Liji Huang on April 1, 1998. Abstract: A magnetic recording medium is provided with multilayered carbon-containing protective overcoats having different surface polarities and electrical conductivities, thereby enabling optimum performance to be tailored for different drive programs. Embodiments include a first protective overcoat comprising hydrogenated carbon and a second protective overcoat comprising graphitic carbon or amorphous carbon nitride.

MAGNETIC RESONANCE IMAGING SYSTEM: Patented by Kozo Satoh on March 1, 1988. Abstract: A magnetic resonance system is arranged to invert the polarity of a slicing gradient magnetic field pulse each time the selective excitation is repeated, and additively combine two types of imaging data corresponding to the opposite polarities of the slicing gradient field pulse to form a magnetic resonance image.

Magnetic resonance method for reducing residual magnetization and adjusting the amplitude of gradient pulses: Patented by Shoei Miyamoto on June 1, 2000. Abstract: In order to reduce residual magnetization caused by gradient pulses, for a gradient pulse having either a positive or negative polarity, a residual magnetization reducing pulse is applied after applying the gradient pulse, or for two or more successively applied gradient pulses having different polarities, the amplitude of the gradient pulse(s) is adjusted to reduce residual magnetization thereafter.

Magnetic system, particularly for ECR sources, for producing closed surfaces of equimodule B of form dimensions: Patented by Jean-Yves Pacquet and Renan Leroy on July 7, 1999. Abstract: The invention relates to a device for generating a magnetic field B, comprising a multi-pole structure (M.sub.1, M.sub.2, M.sub.3) in which the elements have polarities such that the vector sum of the fields

created at each point by each of these elements is sufficient to define at least one closed line of minima B inside a surface with constant modulus (70) closed in the space. Application for an ECR source.

Method and apparatus for concentrating solution: Patented by Tadao Ogawa, Masayuki Matsui, Takanori Mizuno and Masae Inoue on December 8, 1998. Abstract: A solute and a solvent with close boiling points or close polarities are separated and concentrated by vaporizing at least one of the solvent and solute, and selectively adsorbing the vaporized component in an apparatus having a vessel, and an absorbent with an opening into the vessel.

Method of analyzing the voltage induced in an exciter coil of a stepping motor: Patented by Jean-Claude Berney on August 1, 1986. Abstract: A method of analyzing the voltage induced in an exciter coil of a stepping motor. After energization the exciter coil is loaded by a low impedance so that the induction voltage can produce a current. Subsequently, it is attempted to maintain the current through said coil equal to zero by periodically connecting said coil to a positive or negative voltage. The pattern of consecutive polarities of these periodic energizations is analyzed.

METHOD OF ENHANCING GEOPHYSICAL DATA: Patented by Michael C. Kelly and Richard O. Lindsay on November 1, 1990. Abstract: A method of enhancing geophysical data comprising processing the geophysical data into ordered gathers of seismic signals, transforming the seismic signals of each ordered gather into synthetic traces having reflection event amplitudes of only one polarity, combining the synthetic traces of each ordered gather, and restoring the positive and negative polarities to the reflection events in the combined synthetic traces.

Method of protecting articles having a bare ferrous base surface: Patented by Scott Jay Lewin on June 4, 2000. Abstract: A zinc coating directly covers a bare ferrous base of parking meter housing parts. A non-epoxy thermosetting electrically insulating organic non-epoxy powder coating directly covers the zinc coating. The organic coating is directly applied to the zinc coating by electrostatically charging the powder and parts with opposite d.c. voltage polarities and by heating the powder so it adheres to and covers the zinc coating. Alternatively, the base is zinc, directly covered by the organic powder coating.

Motor driving device: Patented by Kazuhiko Nishimura on December 1, 2000. Abstract: In a motor driving device, an IC chip of a drive circuit for driving a motor is die-bonded to one island of a leadframe, and a diode chip of a protection diode for preventing the drive circuit from being destroyed when supplied power is connected to the IC chip with reverse polarities is die-bonded to another island of the leadframe. The supplied-power pad of the IC chip is wire-bonded to the second island, which serves as the cathode electrode of the diode chip.

Multi-layer polymer electroacoustic transducer assembly: Patented by Minoru Toda on February 8, 1994. Abstract: An electroacoustic transducer assembly which comprises multiple layers of piezoelectric polymer material on an acousto-reflective support member. The inner layer closest to the support member is excited at a fixed frequency and the overall thickness of the multiple layers is about one quarter of the wavelength of the wave of fixed frequency within the layers. In a variation of this structure, the inner layer is subdivided into a

plurality of thin layers which are excited with alternating polarities.

Multi-level memory cell with increased read-out margin: Patented by Yoshiji Ohta on December 2, 1991. Abstract: A dynamic semiconductor memory device for storing a signal corresponding to two bits of digital data in a single memory cell. A memory cell consisting of two transistors and one capacitor is formed. Logic is provided to convert two bits of data to two levels of charge with two different polarities. The result is a memory device which requires only 11/2 elements per bit of storage in contrast to the two elements per bit of storage needed in conventional memory cells.

OPTICAL CURRENT TRANSFORMER: Patented by Naoki Ochi on November 1, 1990. Abstract: An optical current transformer, which uses a Faraday cell for detecting the intensity of a magnetic flux induced in a circular iron core, has plural windings having the same number of turns provided on the core in a manner that overall width of the windings are evenly wound along the whole part of the circular iron core, and terminal of the windings having the same polarities are commonly connected by cables.

OPTICALLY DRIVEN RF GENERATOR: Patented by James D. Halsey, Robert F. Riggs, Lawrence H. Gilligan and David W. Gerdt on September 1, 1989. Abstract: An optically driven signal generator utilizes optical switches having a common output port and input ports alternately coupled to first and second potentials of opposite polarities. Optical pulses, with interpulse periods commensurate with a desired output frequency, sequentially operate the switches so that electrical signals of opposite polarities are alternately coupled to a common output port in a manner to establish a continuous electrical signal at a frequency that is commensurate with the interpulse periods.

Organic electroluminescent image display device: Patented by Ichiro Takayama and Michio Arai on January 1, 1997. Abstract: An image display system having a plurality of light emitting cells (EL.sub.11 -EL.sub.44) each having a pair of Electro-Luminescence elements (e.sub.1, e.sub.2) coupled in parallel with each other with opposite polarities. The light emitting cells are arranged on a cross point of a matrix, which is addressed through an active addressing method in which a plurality of rows of the matrix are selected simultaneously, and alternate voltage is applied to the matrix.

Parallel signal bus with reduced miller effect capacitance: Patented by William L. Lynch on December 4, 1995. Abstract: A parallel signal bus for conveying a plurality of logic signals with reduced Miller effect capacitance includes adjacent, parallel signal lines with inverting buffer amplifiers whose respective positions are staggered both longitudinally along the signal lines and latitudinally with respect to their adjacent signal lines. With such a staggered configuration, the resulting Miller effect capacitance which would otherwise result from adjacent signal lines being driven at opposing polarities is reduced, on average, by approximately half.

Pick-up assembly for a stringed musical instrument: Patented by Donald A. Lace Sr on October 9, 1993. Abstract: A dual coil pick-up assembly for a stringed musical instrument having a plurality of moveable strings includes a case having a longitudinal channel with first and second sections. The pick-up assembly also includes first and second magnet structures disposed in the first and second sections having opposite polarities and a coil structure disposed in the first and

second sections of the channel for eliminating hum in the pick-up assembly due to stray magnetic fields.

Polarization dependent writing and erasing process for organic optical media: Patented by Hartmann F. Leube and Leroy McKenzie on February 3, 1992. Abstract: A writing/erasing method for use in connection with homotropic organic optical media is disclosed and claimed. The method includes writing on a thin film with light of a first linear polarity to induce birefringence along the direction of an optical axis of the film's initial state followed by erasing the film with light of a second linear polarity. The first and second linear polarities are angularly offset with respect to one another, preferably by 90 degrees.

Power supply device having control transistors connected in parallel with output voltage terminals: Patented by Akihisa Kusano on May 7, 1994. Abstract: A power supply device converts an input voltage to a transformer to high output voltages at a secondary side. A transistor is connected in parallel with each of two or more series-connected high voltage output circuits of different polarities on the secondary side. The base currents of the transistors paralleled with the output circuits are controlled so that the high voltage output can be continuously varied.

Process and device for the magnetic treatment of a fluid: Patented by Dominique Mercier on September 6, 1994. Abstract: A process and a device for the magnetic treatment of fluid as the fluid moves in successive magnetic fields, including a sheet having adjacent transverse bands each of the same width. Each band is charged with magnets oriented alternatively NS/SN or NNSS/SSNN perpendicularly to the plane of the sheet so that successive transverse bands adjacent to each other present upper polar faces alternately having polarities S, N, S, N . . S,N or S,S, N,N, S,S, N,N, . . S,S, N,N.

Removal device for electrostatic precipitators: Patented by Chin-Chu Chang on December 1, 1994. Abstract: A removal device for an electrostatic precipitator which includes an ion generator, precipitator, collector and removal device for removing particles in the precipitator. A plurality of scrapers capable of linear displacement between two adjacent electrostatic plates of opposite polarities remove particles adhered thereto and scraped particles are collected in the collector for subsequent handling.

Rotor drive motor with u-shaped stator cores: Patented by Edward L. Lopatinsky and Saveliy T. Rosenfield on April 1, 1999. Abstract: A rotor drive motor includes permanently magnetized blades with the opposite poles spaced apart along a radial direction. Two or more stators have a U-shaped core and coil winding, the legs extending radially inwardly and against a housing shroud. Each of the stators are energized in alternately reversed polarities to cause the blades to be rotated continuously. The housing may include a conduit sealed thereto isolating the stators and power circuit components from hazardous materials.

Semiconductor die having on-die de-coupling capacitance: Patented by Paul Torgerson and Scott King on March 8, 1997. Abstract: An integrated circuit die includes a plurality of semiconductor cells and first and second power supply conductors. The power supply conductors have different relative polarities and are electrically coupled to the plurality of semiconductor cells. A power supply de-coupling capacitor is formed within

the die and is electrically coupled between the first and second power supply conductors.

Sense amplifier circuit: Patented by Koji Komatsu on October 5, 1998. Abstract: A sense-amplifier circuit comprising a plurality of sub-sense-amplifiers corresponding to respective reference potentials can operate fast when used for a multivalued information memory. The sense amplifier circuit is composed of sub-sense-amplifiers having different polarities according to corresponding reference potentials: a sub-sense-amplifier SN3 having the highest reference potential is of N (polarity) type and a sub-sense-amplifier SP1 having the lowest reference potential is of P (polarity) type. All sub-sense-amplifiers can operate according to improved characteristics assuring a reduced access time.

Signal processing circuit integrating pulse widths of an input pulse signal according to polarities: Patented by Akira Mashimo on February 1, 2002. Abstract: A signal processing circuit outputs an output signal corresponding to a pulse width of an input pulse signal. This signal processing circuit comprises means for accumulating pulse widths of the input pulse signal for a predetermined period of time, and means for outputting the output signal corresponding to the accumulated pulse width. Each of these pulse widths has one of positive and negative polarities.

Speaker system: Patented by Seiki Suzuki and Noboru Kyouno on April 6, 1998. Abstract: A speaker system includes a plurality of double-voice-coil speaker units fitted to a closed type cabinet and connected in parallel with each other so that first voice coils are connected to each other at the same polarities, and second voice coils are connected to each other at the same polarities, and a single impedance compensating circuit is connected in series to the second voice coils for making the input impedance as the speaker system constant.

Three-phase brushless motors with half-wave control: Patented by Pietro De Filippis on February 6, 1992. Abstract: The motor includes a rotor with an angular array of 2n permanent magnets with a predetermined pole pitch, in which alternate magnets have opposite polarities but the same angular extent substantially equal to 2/3 of the pole pitch.

Video monitor using encoded sync signals: Patented by Les L. Mcbeath, Amir M. Sheikholeslami and Glenn T. Turro on July 1, 1987. Abstract: A video terminal is capable of operating with three different vertical formats which are determined by the polarities of the incoming horizontal and vertical sync signals. A PRO is supplied with address inputs corresponding to the different combinations of incoming vertical and horizontal sync signal polarities and signal levels, and outputs comprising mode selection signals and horizontal and vertical sync pulses of given polarity for use by the monitor.

Video Signal Processing: Patented by Martin Weston and Avigdor Steinberg on September 27, 1996. Abstract: A video signal is enhanced using a non-linear combination of left and right difference signals (L and R), constrained to be zero if either L or R is zero, using a minimum absolute value function. Edge enhancement is provided when the polarities of L and R are the same and peak enhancement when the polarities are different. Difference signals are derived with delays (2 and 4) and a subtracter (3). The non-linear combinations are derived in a lookup table (30).

X-ray scanning tube with deflecting plates: Patented by Bernard Evain, Horia Dumitrescu

and Jean-Marie Fourmigue on March 6, 1990. Abstract: In an x-ray tube of the beam deflection type for a radiology apparatus, the stair-steps of the focusing device of the electron beam are extended by metallic deflecting electrodes placed in parallel relation to said stair-steps and electrically insulated from these latter by means of insulating layers. Said electrodes are brought to different potentials, the polarities and values of which depend on the direction and amplitude of deflection to be obtained.

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Encyclopedic Usage

Cross-Skagerak. In 1993 the scheme was extended by HVDC Cross-Skagerak 3.Cross-Skagerak 3 is a monopolar line for a voltage of 350 kV with a capacity of 500 MW.In installing Cross-Skagerak 3, the old poles Cross-Skagerak 1 and Cross-Skagerak 2 were converted to monopolar HVDC schemes, which run with opposite polarity to Cross-Skagerak 3. [WP]

Frederick Lindemann, 1st Viscount Cherwell. In 1919, Lindemann was one of the first people to suggest that in the Solar Wind particles of both polarities, protons as well as electrons, come from the Sun (Ref.see Notes); he was probably not aware that Kristian Birkeland has made the same prediction three years earlier in 1916. [WP]

John Tyndall. Tyndall's first original work in physical science was in his experiments with regard to magnetism and diamagnetic polarity, on which he was chiefly occupied from 1850 to 1855. [WP]

Polarity (artist). In 1999 Polarity founded a network for producers without a fixed record contract. [WP]

Polarity therapy. Polarity therapy is an alternative medicine system that was created in the mid 20th century by American doctor Randolph Stone. [WP]

Randolph Stone. Dr.Randolph Stone, the founder of Polarity Therapy, was born Rudolph Bautsch in Austria in 1890. [W]

Lexicographic Usage

A

Alternate Mark Inversion. Alternate Mark Inversion (AMI) is a line encoding technique (line code) for T1s. This three-level system uses positive, negative, and grounded pulses (e.g. -5V, 0V, 5V) to represent logical values. A logical 0 is represented with a grounded or absent pulse, and a logical 1 by pulses of alternating polarity. The alternating coding prevents the build-up of a DC voltage in the cable. This is considered an advantage since the cable may be used to carry an additional small DC current to power intermediate equipment such as line repeaters. This DC component may be removed without interfering with this encoded information. [WP]

Alternate mark inversion (AMI) signal. A pseudoternary signal, representing binary digits, in which (a) successive "marks" are of alternately positive and negative polarity and the absolute values of their amplitudes are normally equal and (b) "spaces" are of zero amplitude. Source: Small Business Administration (SBA)

AMI violation. A "mark" that has the same polarity as the previous "mark" in the transmission of alternate mark inversion (AMI) signals. Note: In some transmission protocols, AMI violations are deliberately introduced to facilitate synchronization or to signal a special event. Source: Small Business Administration (SBA)

Antiparallel. Refers to two linear polymers that are opposite in orientation or polarity. Source: U.S. Geological Survey (USGS)

Arch filament system (AFS). A system of small, arched linear-absorption features connecting bright, compact plages of opposite polarity. An AFS is a sign of emerging bipolar magnetic flux and possibly rapid or continued growth in an active region. Source: Lawrence Livermore National Laboratory (LLNL)

Astatic. Having little or no tendency to take a fixed or definite position or direction: thus, a suspended magnetic needle, when rendered astatic, loses its polarity, or tendency to point in a given direction. [W]

B

Balanced line. A transmission line consisting of two conductors in the presence of ground, capable of being operated in such a way that when the voltages of the two conductors at all transverse planes are equal in magnitude and opposite in polarity with respect to ground, the currents in the two conductors are equal in magnitude and opposite in direction. Note: A balanced line may be operated in an

unbalanced condition. Synonym balanced signal pair. Source: Small Business Administration (SBA)

Balanced voltages. Voltages (relative to ground) on the two conductors of a balanced line which, at every point along the line, are equal in magnitude and apposite in polarity. [EU]

Ball-Norton magnetic separator. Dry separator for coarse ore, in which one or two nonmagnetic drums rotate outside a series of fixed magnets alternating in polarity. Source: U.S. Bureau of Mines

Battery assembler. Assembles cells and other components in container (battery case) to make complete storage battery: Inserts cells into container according to prescribed polarity arrangement. Installs covers on cells [CELL COVERER (elec.equip.) 727.687-042] and fits intercell connectors on posts. Burns (fuses) connectors to post. Pours compound over cells to fill cracks and seal battery in case [SEALER (elec.equip.) 727.684-030]. May invert special-type cover onto jig, position cells in cover, ladle molten lead into cover to form posts and connectors and fuse parts to cells, pour plastic seal into grooves, and press container into cover to assemble battery. Source: Occupations

Battery loader. Loads batteries from conveyor or handtruck to two-level (double decker) trucks, according to specified polarity arrangement, preparatory to further processing, such as forming or charging. Clamps or pushes connectors or links onto posts. May perform other tasks, such as wiping excess sealing compound from battery, clipping posts, using handtool, inspecting batteries for defective covers or posts, and rejecting defective batteries. Source: Occupations

Battery tester. Tests storage batteries, using electric testing instruments: Sets dials on testing instruments according to battery voltage. Places positive and negative wired plugs on posts and intercell-connector terminals of corresponding polarity and observes indicator on instrument that measures resistance capacity in terms of pass or reject. Tests rejected batteries to determine specific defects, using voltmeter. Computes comparative figures and test data to determine deficiencies and attaches slip to battery indicating type of defect. May test battery assemblies on conveyor line. May test batteries used in field equipment and be designated Battery Tester, Field (elec.equip.). Source: Occupations

Bernard Jensen. Dr. Bernard Jensen (March 25, 1908 - February 22, 2001) was a chiropractor, entrepreneur, and the author of numerous books and articles on health and healing. Although best known for his work in iridology, Jensen was a noted proponent of a variety of alternative care methods including hydrotherapy (such as colon hydrotherapy), fasting, reflexology, polarity, glandular balancing, homeopathy, herbology, acupuncture, craniopathy and personology. [WP]

Bipolar. Said of an input signal when different states are represented by signals of different electrical voltage polarity. [EU]

Bipolar magnetic region. A region of the solar photosphere containing at least two areas of enhanced magnetic fields of opposing polarity. Source: Lawrence Livermore National Laboratory (LLNL)

Bipolar signal. A signal that may assume either of two polarities, neither of which is zero. Note 1: A bipolar signal may have a two-state non-return-to-zero (NRZ) or a three-state return-to-zero (RZ) binary coding scheme. Note 2: A bipolar signal is usually symmetrical with respect to zero amplitude, i.e., the absolute values of the positive and

negative signal states are nominally equal. Source: Small Business Administration (SBA)

Bipolar violation. A Bipolar Violation, or BPV, is an error in the transmission of a T1 signal where two pulses of the same polarity occur without an intervening pulse of the opposite polarity. [WP]

Black negative. In video, the polarity of the voltage in a video signal is such that black is defined as negative. Source: U.S. General Services Administration (GSA)

Bootstrapped emitter follower. A complementary pair of n-p-n and p-n-p bipolar transistors connected to give a performance equivalent to that of a high-gain high-power transistor emitter follower of a polarity equivalent to that of the input of a bootstrap circuit. [EU]

Bunyaviridae. Bunyaviridae is a family of viruses. Their morphology is somewhat similar to the family of Paramyxoviridae, envelope, spherical, and helical with the diameter of 80-120 nm. Bunyaviridae are single-stranded RNA viruses with negative polarity, the genome is circular with the size around 11-19 kbp. [WP]

C

Channeling. A condition in a bipolar transistor in which the surface of the collector region changes polarity type and becomes an extension of the base region; the collector-base junction then extends far beyond the required position; particularly occurs at light-doped p-type surfaces. [EU]

Chemical polarity. Chemical polarity refers how polar a chemical bond is. To find the polarity, take the difference in the electronegativity. If the result is below 1.8 and above 0.3, the bond is polar. Ionic bonds are considered to be extremely polar. A commonly recognised polar molecule is Water (H2O). [WP]

Combined twinning. A rare type of twinning in quartz in which there appears to be a 180 degrees rotation around c with reflection over (1120) or over (0001). The crystal axes are parallel, but the polarity of the a axis is not reversed in the twinned parts. Source: U.S. Bureau of Mines

Complementary. A term describing integrated circuits that employ components of both polarity types connected in such a way that operation of either is complemented. [EU]

Concerted reaction. In chemistry, a concerted reaction is a chemical reaction in which all bond breaking and bond making occurs in a single step. Reactive intermediates or other unstable high energy intermediates are not involved. Concerted reaction rates tend not to depend on solvent polarity ruling out large buildup of charge in the transition state. Pericyclic reactions are concerted reactions. [WP]

D

Depolarization. The process or act of neutralizing polarity. In neurophysiology, the reversal of the resting potential in excitable cell membranes when stimulated, i.e., the tendency of the cell membrane potential to become positive with respect to the potential outside the cell. Source: EU

Depolarize. To deprive of polarity; to reduce to an unpolarized condition. [W]

Diamagnet. A body having diamagnetic polarity. [W]

Diamagnetism. Phenomenon exhibited by materials like copper or bismuth that become magnetized in a magnetic field with a polarity

opposite to the magnetic force; unlike iron they are slightly repelled by a magnet. [WN]

Diffusion coefficient (diffusion constant). A constant which is a measure of how well a dissolved substance can spread, or diffuse, through a concentration gradient (a fluid which has a higher concentration on one end and a lower concentration on the other end of the container). This depends on the particle size of the substance, the temperature, and the polarity of the substance. The constant has the symbol of k (subscript D), and is used to calculate diffusion rates of the substance. Source: U.S. Geological Survey (USGS)

Dipole (of magnetic field). A very common structure of magnetic field lines in nature. Many planets, including Earth, have almost dipolar field lines, at least in the near region the planet. The "di-" in dipolar refers to the two poles, north and south. The overall structure is symmetric about its axis. In Earth's case the directions of all of these field lines change over very long periods of time and in fact, the dipole structure has polarity (sign) changes so that its north and south poles change places on a time-scale of hundreds of thousands of years. Source: National Aeronautics and Space Administration (NASA)

Direct current (DC). Electrical current that travels in one direction only. Direct current always has a positive and negative polarity depending on direction of current travel. Source: U.S. General Services Administration (GSA)

Direct image film. A film that will retain the same polarity as the previous generation or the original material. [EU]

Dyscrasia. Dyscrasia (from Greek "Dyskrasia", meaning bad mixture), in Ancient Greek medicine, is the imbalance of the four humours, and was believed to be the direct cause of all disease. This is similar to the Asian concept of Yin and Yang; it was believed that imbalance of the two polarities caused ailment. [WP]

E

Electrical precipitation. The removal of suspended particles from gases by the aid of electrical discharges, using alternating or direct current. Alternating current agglomerates the suspended particles into larger aggregates, causing rapid settling, esp.if the gases are quiescent. Direct current is used when large volumes of rapidly moving gas, such as occur in smelter flues, are treated. The suspended particles within a strong electric field of constant polarity become charged and are then attracted to a plate (electrode) of opposite charge. Source: U.S. Bureau of Mines

Electrical quiescent power. The power dissipation required for differential operation when the current through each coil is equal and opposite in polarity. [EU]

Electro-polar. Possessing electrical polarity; positively electrified at one end, or on one surface, and negatively at the other; -- said of a conductor. [W]

Electrostriction. The phenomenon wherein some dielectric materials experience an elastic strain when subjected to an electric field, this strain being independent of polarity of the field. Source: NASA

F

Ferroelectric. Spontaneous electrical polarization with all dipoles in the same direction. The polarity can be reversed by an external electrical field. Source: U.S. Bureau of Mines

Filament channel. A broad pattern of fibrils in the chromosphere, marking a portion of a magnetic polarity inversion line where a

filament may soon form or where a filament recently disappeared. Filament channels interconnect separate filaments and active regions on a common inversion line. Source: Lawrence Livermore National Laboratory (LLNL)

Final inspector. Tests polarity connections on finished storage batteries and inspects final assembly for defects: Positions metal prongs of testing unit over terminals of intercell connecting straps and observes bulb on testing unit that lights when cell arrangement is correct. Examines assembly for defects, such as omission of symbols on battery posts, uneven sealing, and cracked covers. Source: Occupations

G

Gate turnoff thyristor. A thyristor which can be switched from the on-state to the off-state, and vice-versa, by applying control signals of appropriate polarity to the gate terminal. [EU]

Geomagnetic polarity event. A period of no more than about 100 000 years when the Earth's magnetic polarity was opposite to the predominant polarity epoch. [EU]

Grammatical polarity. Grammatical polarity indicates the truth or falsehood of a statement, or negation. There are two grammatical polarities, negated and not negated. In English, grammatical polarity is generally indicated by the presence or absence of the modifier not. [WP]

Group. The assembly of plates of the same polarity joined by a connecting strap. [EU]

H

Halbach array. A Halbach array is a special arrangement of permanent magnets which augments the magnetic field on one side of the device while cancelling the field to near zero on the other side. In the diagram, the magnetic field is enhanced on the bottom side and cancelled on the top side (a one-sided flux). The pattern (on the front face; left, up, right, down) of permanent magnets can be continued indefinitely and have the same effect. It is roughly similar to many horseshoe magnets placed adjacent to each other, with alternating polarity. [WP]

Heliospheric current sheet. A relatively thin electrical current layer that separates the Sun's extended magnetic field lines according to their polarity, away from the Sun on one side and toward the Sun on the other side. It is one of the largest structures in the heliosphere. Source: National Aeronautics and Space Administration (NASA)

High Speed Photometer. The High Speed Photometer (HSP) was a scientific instrument installed on the Hubble Space Telescope. The HSP was designed to measure the brightness and polarity of rapidly varying celestial objects. It could observe in ultraviolet, visible light, and near infrared at a rate of one measurement per 10 microseconds (10e-5 seconds). The design was novel in that despite being able to view through a variety of filters and apertures, it had no moving parts. [WP]

Homopolar generator. A homopolar or unipolar generator is an electrical generator consisting of a conducting flywheel rotating in a magnetic field with one electrical contact near the axis and the other near the periphery. In contrast to other types of generators, the output voltage never changes polarity, hence the name. The charge separation results from the Lorentz force on the free charges in the disk. The motion is azimuthal and the field is axial, so the electromotive force is radial. The electrical contacts must be made through a "brush" or slip ring, which results in large losses at the low voltages generated. [WP]

Hyperpolarization. A shift in the electrical charge, or polarity, within a cell toward the negative. Source: U.S. Geological Survey (USGS)

Hysteresis. A lagging or retardation of the effect, when the forces acting upon a body are changed, as if from velocity or internal friction; a temporary resistance to change from a condition previously induced, observed in magnetism, thermoelectricity, etc., on reversal of polarity. [W]

I

Impulse. A surge of unidirectional polarity. [EU]

Induction. The property by which one body, having electrical or magnetic polarity, causes or induces it in another body without direct contact; an impress of electrical or magnetic force or condition from one body on another without actual contact. [W]

Inherent. Permanently existing in something; inseparably attached or connected; naturally pertaining to; innate; inalienable; as, polarity is an inherent quality of the magnet; the inherent right of men to life, liberty, and protection. [W]

Isotropy. Uniformity of physical properties in all directions in a body; absence of all kinds of polarity; specifically, equal elasticity in all directions. [W]

J

Janus-faced. Having or concerned with polarities or contrasts; "a Janus-faced view of history"; "a Janus-faced policy". [WN]

L

Laterally-reversed photomask. Photomask produced from an original, which retains the negative or positive polarity of the original but is a mirror image of its pattern. [EU]

Like dissolves Like. Substances with similar polarities which relate to their attractive intermolecular forces dissolve in each other. Source: Lawrence Livermore National Laboratory (LLNL)

Lodestone. A permanent magnet consisting of magnetite that possess polarity and has the power to attract as well as to be attracted magnetically. [WN]

M

Mad. Having impaired polarity; -- applied to a compass needle. [W]

Magnetic polarity reversal. A change of the earth's magnetic field to the opposite polarity that has occurred at irregular intervals during geologic time. Polarity reversals can be preserved in sequences of magnetized rocks and compared with standard polarity-change time scales to estimate geologic ages of the rocks. Rocks created along the oceanic spreading ridges commonly preserve this pattern of polarity reversals as they cool, and this pattern can be used to determine the rate of ocean ridge spreading. The reversal patterns recorded in the rocks are termed sea-floor magnetic lineaments. Source: U.S. Geological Survey (USGS)

Magnetic pole. Either of two limited regions in a magnet at which the magnet's field is most intense. The two regions have opposing polarities, which we label "north" and "south", after the two poles on the Earth. Source: NASA's Goddard Space Flight Center

Magnetic reversals. Earth's magnetic field occasionally "flips" or reverses polarity. This means that, if a polarity reversal happened today, your compass would point south instead of north!. Source: NPS

Magnetite. An oxide of iron (Fe3O4) occurring in isometric crystals, also massive, of a black color and metallic luster. It is readily attracted by a magnet and sometimes possesses polarity, being then called loadstone. It is an important iron ore. Called also magnetic iron. [W]

Magneto repairer. Tests and repairs magnetos used in gasoline and diesel engines, using meters, gauges, and handtools: Connects magneto to motor and electrical test panel and starts motor to determine source of malfunction. Disassembles magneto and inspects coils, condenser, and armature for shorts. Repairs or replaces worn or defective parts, using handtools. Verifies polarity of armature. Cleans parts with alcohol or solvent and reassembles unit. Adjusts breaker points, using feeler gauge. Installs magneto in engine. Source: Occupations

Magnetogram. Solar magnetograms are a graphic representation of solar magnetic field strengths and polarity. Source: NOAA

Magnetoreception. The ability to sense the polarity or the inclination of the earth's magnetic field, and to be involved in navigation. [WP]

Magnetotaxis. Magnetotaxis is the ability of certain cells to sense the polarity or the inclination of the earth's magnetic field, as an aid to navigation. [WP]

Minus (-) sense RNA. A virus with a single-stranded RNA genome of the opposite polarity ('sense') as mRNA. Source: Center for Faith-Based Initiatives

Mode. Defined direction, frequency and polarity of the laser beam. [EU]

Molecular geometry. Molecular geometry or molecular structure is the three dimensional arrangement of the atoms that constitute a molecule. The molecular geometry affects most properties of a substance including reactivity, polarity, phase of matter, color, magnetism, and biological activity. [WP]

Mount Wilson magnetic classifications. Alpha. Denotes a unipolar SUNSPOT group. Beta. A sunspot group having both positive and negative magnetic polarities, with a simple and distinct division between the polarities. Beta-Gamma. A sunspot group that is bipolar but in which no continuous line can be drawn separating spots of opposite polarities. Delta. A complex magnetic configuration of a solar sunspot group consisting of opposite polarity UMBRAe within the same PENUMBRA. Gamma. A complex ACTIVE REGION in which the positive and negative polarities are so irregularly distributed as to prevent classification as a bipolar group. Source: NOAA

Mutual opposition. A relation between two opposite attributes or tendencies; "he viewed it as a balanced polarity between good and evil". [WN]

N

Negative image. A polarity reversal in video transmission. It results in an image having its light and dark areas reversed. Source: U.S. General Services Administration (GSA)

Neon lamp. A neon lamp is a gas discharge lamp containing neon gas (or in types with different colors also other noble gas) at low pressure. A small electric current, which may be AC or DC, is passed through the tube,

causing it to glow orange-red. In AC-excited lamps, both electrodes produce light, but in a DC-excited lamp, only the negative electrode glows. This simple fact can be used to distinguish between AC and DC sources using a neon lamp and to distinguish the polarity of DC sources. [WP]

Neutral line. The line that separates longitudinal magnetic fields of opposite polarity. Source: NOAA

Neutral operation. A method of teletypewriter operation in which marking signals are formed by current pulses of one polarity, either positive or negative, and spacing signals are formed by reducing the current to zero or nearly zero. Source: Small Business Administration (SBA)

Noise-cancelling headphone. Noise-cancelling headphones reduce unwanted ambient sounds (i.e., noise) by means of active noise control. Essentially, this involves using a microphone, placed near the ear, and electronic circuitry which generates an "antinoise" sound wave of the opposite polarity from the sound wave arriving at the microphone. This results in destructive interference, which cancels out the noise within the enclosed volume of the headphone. [WP]

Nonpolar. In chemistry, a nonpolar compound is one that does not have concentrations of positive or negative electric charge. Nonpolar compounds, such as oil, are not soluble in water because of its (the water's) polarity. Some non-polar compounds have polar bonds, which is cancelled out by the way the atoms are arranged. E.g. linear and tetrahedral, like that of ammonium nitrate, shapes are most likely to result in a dipole cancel. [WP]

Non-return to zero inverse. A video data scrambling scheme that is polarity insensitive. [EU]

NOT circuit. In computers, a device or circuit which inverts the polarity of a pulse. Also called inverter. Source: NASA

O

Oscillatory surge. A surge which includes both positive and negative polarity values. [EU]

Outgroup. In a cladistic analysis, any taxon used to help resolve the polarity of characters, and which is hypothesized to be less closely related to each of the taxa under consideration than any are to each other. Source: U.S. Geological Survey (USGS)

P

Paired disparity code. A code in which some or all of the characters are represented by two sets of digits of opposite disparity that are used in sequence so as to minimize the total disparity of a longer sequence of digits. Note 1: An alternate mark inversion signal is an implementation of a paired disparity code. Note 2: The digits may be represented by disparate physical quantities, such as two different frequencies, phases, voltage levels, magnetic polarities, or electrical polarities, each one of the pair representing a 0 or a 1). Source: Small Business Administration (SBA)

Palaeomagnetism. The Earth has a magnetic field associated with it. When lava, containing magnetic substances, begins to harden it does so with its polarities matching those of the Earth. Therefore many rocks and hardened lava have polarities aligned with the Earth. [WP]

Parker, Philip M. INSEAD Chair Professor of Management Science. On September 4, 2007 he obtained the patent for a "Method and Apparatus for Automated Authoring and Marketing," which was used, in part, to create "Polarities: Webster's Quotations, Facts and Phrases." Publisher: ICON Group International, Inc. (San Diego). Abstract: The present invention provides for the automatic authoring, marketing, and/or distributing of title material. A computer automatically authors material. The material is automatically formatted into a desired format, resulting in a title material. The title material may also be automatically distributed to a recipient. Meta material, marketing material, and control material are automatically authored and if desired, distributed to a recipient. Further, the title material may be authored on demand, such that it may be in any desired language and with the latest version and content. [W]

Phase flux reversal. In phase-encoded recording, a magnetic flux reversal written at the nominal midpoint between successive "1" bits, or between successive "0" bits, to establish proper polarity. Source: Small Business Administration (SBA)

Phase-encoded (PE) recording. Binary recording on magnetic media, such as magnetic disks, tapes, and cards, in which a "1" is represented by a magnetic flux reversal to the polarity of the interblock gap, and a "0" is represented by a magnetic flux reversal to the polarity opposite to that of the interblock gap when recording in the forward direction. Source: Small Business Administration (SBA)

POL. Polarity. Source: Commission of Fine Arts

Polar molecule. In chemistry, a polar molecule is a molecule in which the centers of positive and negative charge distribution do not converge. These molecules are characterized by a dipole moment which measures their polarity. [WP]

Polar operation. A telegraph system in which marking signals are formed by current or voltage pulses of one polarity and spacing signals by current or voltage pulses of equal magnitude but opposite polarity (bipolar signal). Source: Small Business Administration (SBA)

Polar rain. A drizzle of electrons observed inside the polar caps, apparently from the high end of the energy distribution of solar wind electrons. Its origin in the solar corona is revealed by the fact that in general only one polar cap receives it at any time--the one which (depending on IMF polarity) is linked to the Sun. Source: NASA

Polarily. In a polary manner; with polarity. [W]

Polarity. The relationship of the colors or tones of a photographic image to those of the actual object or scene captured on film--positive if the image reflects the original, negative if the colors/tones are reversed. A bibliographic item composed of more than one photographic image may have mixed polarity. The term is also used in reprography to describe the reversal of tones from positive to negative, or vice versa. Source: Commission of Fine Arts

Polarity (artist). Polarity aka Robert Agthe is a drum and bass producer from Aglasterhausen. Since 1998 he has produced a number of tracks using a variety of elements. [WP]

Polarity (power). Polarity in international relations is a description of the distribution of power within the international system. [WP]

Polarity item. In linguistics a polarity item is an expression which is sensitive to the presence, in the same sentence, of certain other expressions that are somehow negative.

Polarity items divide into those that must co-occur with a somehow negative expression (negative polarity item, NPI) and those that cannot (positive polarity item, PPI). An example of an NPI is the English word any. [WP]

Polarity of picture signal. The use of either positive or negative potential for dark areas in a picture. Polarity is either black negative or black positive. Source: U.S. General Services Administration (GSA)

Polarity of Translation. Decrease in the synthesis of proteins specified by genes distal to the operator and to the site of a nonsense, frameshift, deletion or insertion mutation in an operon. A mutation which produces polarity is called a polar mutation or a polarity mutation. Source: MeSH

Polarity reversal circuit. A direct current alarm signal circuit that reverses polarity upon the initiation of an alarm. The polarity reversal is detected and annunciated by an alarm signal receiver. Source: U.S. General Services Administration (GSA)

Polarity reverser. A mechanical or electrical device for the purpose of maintaining the same polarity at the terminals of an axle driven generator when the direction of rotation of the armature reverses with the direction of motion of the coach. [EU]

Polarity test. A test taken on a machine to demonstrate that the relative polarities of the windings or permanent magnet poles are correct. [EU]

Polarity therapy. Polarity therapy is an alternative medicine system that was created in the mid 20th century by American doctor Randolph Stone. It claims to be a way to keep fit and healthy on all levels, by balancing the basic positive and negative energies that constitute life. It involves bodywork and diet. [WP]

Polarization. The act of polarizing; the state of being polarized, or of having polarity. [W]

Polarize. To communicate polarity to. [W]

Polarizing voltage. A steady voltage applied to the input of a device or system, which establishes the polarity of the input signal as negative-going or positive-going pulses. [EU]

Pole. One of the opposite or contrasted parts or directions in which a polar force is manifested; a point of maximum intensity of a force which has two such points, or which has polarity; as, the poles of a magnet; the north pole of a needle. [W]

Push-push voltages. Voltages (relative to ground) on the two conductors of a balanced line which, at every point along the line, are equal in magnitude and have the same polarity. [EU]

Pyroelectric. Pertaining to, or dependent on, pyroelectricity; receiving electric polarity when heated. [W]

Q

Quiescent current. A direct current of opposite polarity in each valve coil when using a differential coil connection producing zero output. [EU]

R

Randolph Stone. Dr. Randolph Stone, the founder of Polarity Therapy, was born Rudolph Bautsch in Austria in 1890. He emigrated to America as a youngster around 1898. His family settled in the upper midwest, with relatives living in Wisconsin and

Minnesota. He learned English by reading the Bible, and as a teenager he traveled widely through the U.S. [WP]

Relative dating. Dating methods that determine time with respect to stratigraphic position, for example deeper layers being older, or with respect to some changing quantity or property, such as magnetic polarity. Source: National Geophysical Data Center (NGDC)

Reversal. A change in normal polarity of the cell or battery. [EU]

Reversals, magnetic. Episodes of changes in the Earth's magnetic field which result in the polarity of the north and south magnetic poles being interchanged. Reversals have occurred in the geological history of the Earth at typical intervals of 500,000 years. The Sun's global magnetic polarity seems to reverse every 11-year sunspot cycle. Source: National Aeronautics And Space Administration (NASA)

Reverse charging. Reverse charging is when a rechargeable battery is recharged with its polarity (plus/minus) reversed. While reverse charging can occur when a user mistakenly inserts the battery incorrectly into a charger, it is most commonly caused when multiple batteries are used in series in a device. When one battery completely discharges ahead of the other, the other batteries in series may force the battery to discharge to below zero. Reverse charging may lead to explosion, leakage, or at best damage the battery and/or the device or charger. [WP]

S

Sector boundary. In the solar wind, the area of demarcation between sectors, which are large-scale features distinguished by the predominant direction of the interplanetary magnetic field, toward the Sun (a negative sector), or away from the Sun (a positive sector). The sector boundary separating fields of opposite polarity is normally narrow, passing the Earth within minutes to hours as opposed to the week or so needed for passage of a typical sector. The solar wind velocities in the boundary region are typically among the lowest observed. Source: Lawrence Livermore National Laboratory (LLNL)

Separator. An ion permeable, electronically nonconductive, spacer or material which prevents electronic contact between electrodes of opposite polarity in the same cell. [EU]

Solar sector boundary. The apparent solar origin, or base, of the interplanetary SECTOR BOUNDARY marked by the larger-scale polarity inversion lines. (SSB). Source: NOAA

Solenoid. An electrodynamic spiral having the conjuctive wire turned back along its axis, so as to neutralize that component of the effect of the current which is due to the length of the spiral, and reduce the whole effect to that of a series of equal and parallel circular currents. When traversed by a current the solenoid exhibits polarity and attraction or repulsion, like a magnet. [W]

Solvatochromic. The Solvatochromic effect or solvatochromic shift refers to a strong dependence of absorption and emission spectra with the solvent polarity. [WP]

Solvatochromism. Solvatochromism is the ability of a chemical substance to change colour due to a change in solvent polarity. [WP]

Spark tester. Tests encased storage batteries for air-tightness, using electric spark tester: Places frame of tester over battery container and presses plug terminal of testing apparatus to posts of battery. Moves frame of tester over surface of container to detect leaks indicated by bright sparks emitted at contact points. Examines assemblies for defects, such as

uneven sealing, misplaced intercell connectors, and covers. Attaches slip to rejected batteries indicating type of defect. May stamp polarity symbols on posts, using hammer and dies. Source: Occupations

Spin valve. A spin valve is a device consisting of two or more conducting magnetic materials, that alternates its electrical resistance (from low to high or high to low) depending on the alignment of the magnetic layers. The devices magnetic layers align up or down depending on an external magnetic field. Layers are made of two materials with different hysterisis curves so one layer (soft layer) changes polarity while the other (hard layer) keeps its polarity. In the figures below, the top layer is soft and the bottom layer is hard. [WP]

Strapping. Coupling between the cavities by conductors connecting poles of the same polarity. [EU]

Sunspot. A temporary disturbed area in the solar photosphere that appears dark because it is cooler than the surrounding areas. Sunspots consist of concentrations of strong magnetic flux. They usually occur in pairs or groups of opposite polarity that move in unison across the face of the Sun as it rotates. Source: National Aeronautics and Space Administration (NASA)

Sunspot cycle. The approximately 11-year quasi-periodic variation in the sunspot number. The polarity pattern of the magnetic field reverses with each cycle. Other solar phenomena, such as the 10.7-cm solar radio emission, exhibit similar cyclical behavior. Source: Lawrence Livermore National Laboratory (LLNL)

Symmetric characteristic circuit element. A 2-terminal element whose parameters are independent of the voltage polarity and of the direction of the current. [EU]

Symmetry. The degree of equality between the servovalve normal flow gain of one polarity and that of the reversed polarity. Symmetry is measured as the difference in normal flow gain of each polarity, expressed as percentage of the greater. [EU]

T

Tracer. A means of identifying polarity. Two common types are ridges along the axis of the insulation perceptible to the touch, and bands of contrasting color in braid or wind. [EU]

U

Unipolar magnetic region. A large-scale photospheric region where the magnetic elements are predominantly of one polarity (for example, the solar polar regions). Source: Lawrence Livermore National Laboratory (LLNL)

Unipolar region. A relatively large region on the Sun's surface showing magnetic field of only one polarity, i.e., either positive polarity (coming out of the surface and into the solar wind) or negative polarity (going into the surface from the solar wind. For contrast see Bipolar (Region). Source: National Aeronautics and Space Administration (NASA)

V

VPPA. Variable Polarity Plasma Arc. Source: National Aeronautics and Space Administration (NASA)

W

Weak (grammatical term). In grammar, the term weak (originally coined in German: schwach) is used in opposition to the term strong (stark) to designate a conjugation or declension when a language has two parallel systems. The only constant feature in all the

grammatical usages of the word "weak" is that it forms a polarity with "strong"; there is not necessarily any objective "weakness" about the forms so designated. [WP]

Y

Yi Eon-jeok. Yi Eon-jeok (1491-1553), sometimes known by his pen name Hoejae, was a public official and intellectual of the middle Joseon Dynasty. He was born and died in Gyeongju, then the capital of Gyeongsang province. Like most intellectuals from Gyeongsang in this period, he was a member of the Sarim faction. He contributed to the polarity-nonpolarity (mugeuk-taegeuk) debate in classical Korean Confucianism. [WP]

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