BEYOND THE VISIBLE AND THE MATERIAL pdf

1: Beyond the Visible and the Material : Laura M. Rival :

Beyond the Visible and the Material: The Amerindianization of Society in the Work of Peter RiviÃ¨re 1st Edition by Laura M. Rival (Editor).

Inswing French Door A French door with panels that swing to the inside. One, two, three and four panel units available as stationary or operating. Interior Casing The casing trim used on the interior perimeter of the window or door. Generally supplied by others except in the case of round top casing which is factory supplied. Jamb Extension A jamb-like member, usually surfaced on four sides, which increases or extends the depth of the exterior or interior window or door frame; jamb extensions imply a larger depth than "wood jamb liners. Common jamb depths are: Keyed Cylinder Lock A lock providing an exterior entry and locking convenience. Krypton Gas Inert gas known for its ability to provide insulating properties in a small air space. Laminated Glass Glass composed of two sheets of glass fused together with a sheet of transparent plastic between the sheets. When broken laminated glass will generally not leave the opening. Laminating A method of gluing strips of thin clear wood to the lengthwise surfaces of finger jointed material to provide the appearance of clear stock. Lever Lock A lever handle and lever arm operator available as an option on awning units. Lockset A complete door lock system comprised of the lock mechanism together with knobs, keys, plates, strikes and other accessories. Low E Glass Low E stands for low emissivity. The lower the emissivity the higher the percentage of long-wave radiation blocked thereby improving thermal performance. Low E glass is coated with a thin microscopic, virtually invisible, metal or metallic oxide layer. The primary function is to reduce the U-value by suppressing radiative heat flow. A secondary feature is the blocking of short wave radiation to impede heat gain. There are two basic types of Low E glass. The second is pyrolytic Low E, commonly referred to as hard-coat. It offers significant improvement in reducing solar heat gain coefficient values, providing customers one of the coolest summer glass temperatures of all Low E products. Additionally, ultraviolet light transmission is greatly reduced. The Low E II coated glass products are specifically designed for insulating glass units normally as a second surface coating. See Low E and pyrolitic definitions. Magnum A Marvin trade name for heavily constructed window products which are designed for applications where a heavy duty product is necessary. Magnum Double Hung A heavy duty double hung product made with larger than standard parts. The larger sash parts will accommodate larger glass sizes. Magnum Hopper A heavy duty window designed to tilt into the room for ventilation purposes. Magnum Tilt-Turn A heavy duty window. The Magnum Tilt-Turn has hardware which allows the sash to either be tilted into the room for ventilation or swing into the room for egress or cleaning. Masonry Opening A brick, stone or block opening into which a window or door unit is installed including the outside casing. Mortise and Tenoning The system by which Marvin assembles authentic divided lite units, a projecting tenon on either the muntins or bars fit snugly into a mortise in either a bar, stile or rail. Mulling The act of attaching two or more window or door units together. The joint is then finished with a mullion center cap or mull trim. Mullion The vertical member of a sash, window or door frame between openings in a multiple opening frame. Two or more units mulled together with a space left between the units. The jamb extension surrounds the entire unit. Two or more units mulled together with a space between the units. The jamb extension surrounds each unit separately, providing space for a support member between the units. Mullion Expander An aluminum extrusion designed specifically for the Clad Magnum Double Hung Replacement System with Panning to allow the existing panning to be expanded to a wider width to accommodate a larger rough opening. Multi-Lock Hardware An adjustable lock system used on the French Casement to ensure a tight seal of the sash frame components. It also provides a secure locking system. Muntins or "munt" A short "bar," horizontal or vertical, extending from a bar to a stile or rail or another bar. Nailing Fin A factory installed vinyl strip that is inserted into a kerf in the frame of clad units. Nailing fin installation is the standard method used for installing clad units. Non-Keyed Cylinder A handle without a keyed cylinder. The door cannot be locked from the exterior. Obscure Glass Glass formed by running molten glass through special rollers. These rollers have a pattern on them causing the glass to become patterned and thus obscure. One-Wide 1W The current term used to describe one frame with single or multiple sash or panels. Operation Our drawings always illustrate the window sash or door panels as if you are looking at it from the exterior. X means operating, O means stationary. Operator An operating sash, panel or unit. Outswing French Door A French door with panels that swing to the outside. One, two, three, or four panel units available as stationary or operating. The letter O stands for stationary while the letter X stands for operating. Panel Either the stationary or operator wood frame with glass used on Marvin door products. Panning A term used to describe the aluminum covering extrusion components i. Part Stop A strip of wood with weather-stripping attached which prevents air and water infiltration. Part stops are commonly found at the head jamb of a double hung unit. Pitch A term used to describe the angle of a roof. A pitch indicates that the roof rises 4" vertically for each 12" horizontally. Plinth Block A decorative wood block placed between the vertical casing and the top casing of a unit to provide an elegant interior casing profile. Pole Crank An aluminum extension pole used to open or close roof windows or awnings which would be inaccessible because of their height. Polygon A high level term used to describe triangles, trapezoids, pentagons, hexagons and octagons. Prime The first coat of paint in an application that consists of two or more coats; also refers to the paint used for such an initial coat - primer. Pultrusion Lineal profiles of constant cross section manufactured by combining plastic resin and continuous glass fiber reinforcement. These thermally insulating and structural components are ideally suited for applications where strength, thermal stability and weather resistance are required, such as in patio door frames and commercial windows. Pyrolytic Low E Glass Hardcoat Pyrolytic Low-E is designed to be used either in non-insulating applications such as energy panels that have exposed surfaces or for insulating glass applications. In some northern climatic situations where an application or customer requires increased solar heat gain, over Low E II performance, this is a desirable option. This increased solar heat gain which is desirable in winter may increase summer energy costs if the home is air conditioned. The pyrolytic coating is typically applied to the second surface, but can be applied to the third surface to provide increased solar heat gain. R-Value The resistance a material has to heat flow. Higher numbers indicate greater insulating capabilities. Rabbet A groove along or near the edge of a piece of wood. Radius The length of an imaginary line from the center point of a circle to the arc or circumference of a circle. Rails The cross or horizontal members of the framework of a sash, door or other panel assembly. Relief Kerf Kerfs machined into the frame parts of a unit. Relief kerfs inhibit warping. Retro-Sizing Refers to units which are sized for replacement purposes. Rolled Aluminum A term used to describe aluminum profiles for screen and energy panel surrounds which are fabricated by the use of a roller or series of rollers to produce a desired profile. All other Marvin profiles are fashioned by the extrusion method. Roller Cams The adjustable roller devices of the Multi-Lock hardware installed on the sash of the French Casement unit. When adjusted properly with an Allen wrench, they ensure a tight seal between the sash and frame members. Rose A circular cover plate attached to the stile directly behind a knob or door handle. May be plain or have a decorative design embossed into the cover. Roto-Gear A term used to describe the steel drive worm, gears and crank device used for opening awnings and casements. Rough Opening The opening in the wall where a window or door unit is to be installed. Openings are larger than the size of the unit to allow room for insulation and to shim the unit square. Round Top Generally a semicircle window which is mulled to the top of another window or door, thus forming the round top appearance. There are full round tops, separated round tops, ellipticals, transoms, inverted corners, ovals and Gothic heads, etc. Round tops can be used separately or combined with other units to create a seemingly endless selection. The sash consists of the following parts: Horizontal sash members that meet, as in double hung units. These could also be vertical check stiles, as in the glider or patio door. Divisional members extending from rail to rail or from stile to stile in an authentic divided lite unit. Divisional members extending from a bar to a rail or stile or another bar. Sash Limiter An optional metal device which attaches to a casement sill and bottom rail which limits the sash to a specified opening -5, 10, 15 or 20 degrees. Sash Lock A locking device which holds a window shut, such as a lock at the check rails of a double hung unit.

BEYOND THE VISIBLE AND THE MATERIAL pdf

2: [PDF] beyond the visible and the material Download ~ "Read Online Free"

Beyond the Visible and the Material Book Summary: Focusing on the anthropological development of Amazonia, this volume explores the legacy of Peter RiviÃ¯Â¿Â½re, a recently retired Professor of Social Anthropology, University of Oxford.

Movie Gallery Interactive Java Tutorials This site is designed as a convenient location for our visitors to view the various Java tutorials that we have constructed to aid in teaching concepts in light and color. Interactive Lens Action Tutorials - This set of tutorials examines lens action as a function of lens shape. Examine the difference between negative and positive lenses on image formation and visit our variable lens Java and Flash tutorials. Prism Refraction - The prism tutorial explores how changes in the thickness and angle of incidence of a visible light beam affect how light is refracted by a prism. Human Eye Accommodation - Exploring how images are created on the retina of a human eye, this tutorial allows the student to adjust the distance of an object from the eye to vary the size of the image. Lasers - This tutorial explores how a ruby laser crystal works when excited by a xenon flash tube. As photon energy is "pumped" into the crystal by the flash tube, the internal crystal photons reflect on the mirrored ends of the crystal until they have achieved enough energy to escape in the form of a laser beam. An object beyond the center of curvature forms a real and inverted image between the focal point and the center of curvature. This interactive tutorial explores how moving the object farther away from the center of curvature affects the size of the real image formed by the mirror. Also examined in the tutorial are the effects of moving the object closer to the mirror, first between the center of curvature and the focal point, and then between the focal point and the mirror surface to form a virtual image. Convex Spherical Mirrors - Regardless of the position of the object reflected by a convex mirror, the image formed is always virtual, upright, and reduced in size. Convex Spherical Mirrors 3-Dimensional Version - Regardless of the position of the object reflected by a convex mirror, the image formed is always virtual, upright, and reduced in size. This tutorial utilizes three-dimensional graphics. Birefringence Acoustical Model of Anisotropy - The anisotropic character of materials relates to those properties that have different values when measurements are made in different directions within the same material. This interactive tutorial explores how sound waves exhibit anisotropic character as a function of grain structure when traveling through a wooden block, which serves as an excellent model for the behavior of light passing through anisotropic crystals. Double Refraction Birefringence - Calcite is a form of calcium carbonate, commonly referred to as Iceland spar, which has a rhombohedral crystalline shape. Light passing through a crystal of calcite is refracted into two rays, which are separated by a wide margin due to the strong birefringence of the crystal. This interactive tutorial simulates viewing of a ball-point pen and a line of text through a crystal of Iceland spar, producing a double image from the refracted light rays. Birefringence in Calcite Crystals - As light travels through an anisotropic material, the electromagnetic waves become split into two principal vibrations, which are oriented mutually perpendicular to each other and perpendicular to the direction that the waves propagate. The wave whose electric vector vibrates along the major axis of the index ellipse is termed the slow wave, because the refractive index for this wave is greater than the refractive index for the other wave. The wave vibrating perpendicular to the slow wave is termed the fast wave. This tutorial explores double refraction or birefringence in calcite calcium carbonate , a colorless, transparent, rhombohedral crystalline salt that is the most common such material found naturally. The Fresnel or Refractive Index Ellipsoid - The Fresnel, or refractive index, ellipsoid describes the dielectric properties measured in all directions through a material. Measurements through the radius yields the refractive index n or the square root of the dielectric constant for waves whose electric displacement vectors lie in the direction of the ellipsoid radius. This tutorial explores variations in the shape and dimensions of the ellipsoid as a function of refractive index. Birefringence Variations with Crystal Orientation - When a beam of light is incident on a birefringent crystal, the waves are split upon entry into orthogonal polarized components termed ordinary and extraordinary that travel through the molecular lattice along different pathways, depending on their orientation with respect to the crystalline optical axis. If the incident beam is oblique to the optical axis, the waves diverge during their journey through the crystal. In contrast, the orthogonal wave components follow a co-linear pathway when the incident light beam enters the crystal either parallel or perpendicular to the optical axis. This interactive tutorial explores variations in birefringence that result from orientational variations between the crystal optical axis and the incident light beam. Birefringent Crystals in Polarized Light - In order to examine how birefringent anisotropic crystals interact with polarized light in an optical microscope, the properties of an individual, isolated crystal can be considered. The specimen material in this tutorial is a hypothetical tetragonal birefringent crystal having an optical axis oriented in a direction that is parallel to the long axis of the crystal. Light entering the crystal from the polarizer will be traveling perpendicular to the optical axis of the crystal, regardless of the crystal orientation with respect to the polarizer and analyzer transmission axes. The virtual microscope viewport presents the crystal as it would appear in the eyepieces of a microscope under crossed-polarized illumination as it is rotated around the microscope optical axis. Interactive Michel-Levy Birefringence Chart - Quantitative analysis of the interference colors observed in birefringent samples is usually accomplished by consulting a Michel-Levy chart similar to the one illustrated in the tutorial window below. As is evident from this graph, the polarization colors visualized in the microscope and recorded onto film or captured digitally can be correlated with the actual retardation value, thickness, and birefringence of the specimen. The chart is relatively easy to use with birefringent samples if two of the three required variables are known. This interactive tutorial enables visitors to determine the interference color associated with all three values by clicking on selected regions of the interactive chart. A large version of the tutorial is also available. Color Temperature Color Temperature in a Virtual Radiator - Investigate the apparent "color" of a virtual radiator in this case, a black metal pot as it is slowly heated through a wide temperature range by external energy. The concept of color temperature is based on the relationship between the temperature and radiation emitted by a theoretical standardized material, termed a black body radiator, cooled down to a state in which all molecular motion has ceased. Hypothetically, at cessation of all molecular motion, the temperature is described as being at absolute zero or 0 Kelvin, which is equal to degrees Celsius. To use this type of graph, a straight edge ruler is placed at the color temperature of the original source and is pivoted to connect to the desired color temperature. The region where the ruler intersects the central axis identifies the necessary filter to achieve the color conversion. This interactive Java nomograph tutorial can be employed to quickly determine the appropriate filter under a variety of illumination scenarios. White and Black Balance - The overall color of a digital image captured with an optical microscope is dependent not only upon the spectrum of visible light wavelengths transmitted through or reflected by the specimen, but also on the spectral content of the illuminator. Diffraction of Light Diffraction of Light - Several of the classical and most fundamental experiments that help explain diffraction of light were first conducted between the late seventeenth and early nineteenth centuries by Italian scientist Francesco Grimaldi, French scientist Augustin Fresnel, English physicist Thomas Young, and several other investigators. These experiments involve propagation of light waves though a very small slit aperture , and demonstrate that when light passes through the slit, the physical size of the slit determines how the slit interacts with the light. This interactive tutorial explores the diffraction of a monochromatic light beam through a slit of variable aperture. Particle Size and Diffraction Angles - The phenomenon of diffraction is observed when a specimen consisting of fine particles is illuminated with a beam of semi-coherent, collimated light. Good examples of this effect are a microscope slide containing particles of various sizes, and the spreading of automobile headlights on a foggy night. In both cases, diffraction is manifested through the scattering of light by small particles having linear physical dimensions similar to the wavelength of the illumination. This interactive tutorial demonstrates the effects of diffraction at an aperture and explores the spreading of light by a specimen composed of individual particles. Line Spacing Calculations from Diffraction Gratings - By definition, a diffraction grating is composed of a planar substrate containing a parallel series of linear grooves or rulings, which can be transparent, semi-transparent, or opaque. When the spacing between lines on a diffraction grating is similar in size to the wavelength of light, an incident collimated and coherent light beam will be strongly diffracted upon encountering the grating. This interactive tutorial examines the effects of wavelength on the diffraction patterns produced by a virtual periodic line grating of fixed line spacing. Light Diffraction Through a Periodic

Grating - A model for the diffraction of visible light through a periodic grating is an excellent tool with which to address both the theoretical and practical aspects of image formation in optical microscopy. Light passing through the grating is diffracted according to the wavelength of the incident light beam and the periodicity of the line grating. This interactive tutorial explores the mechanics of periodic diffraction gratings when used to interpret the Abbe theory of image formation in the optical microscope. Airy Pattern Formation - When an image is formed in the focused image plane of an optical microscope, every point in the specimen is represented by an Airy diffraction pattern having a finite spread. This occurs because light waves emitted from a point source are not focused into an infinitely small point by the objective, but converge together and interfere near the intermediate image plane to produce a three-dimensional Fraunhofer diffraction pattern. This interactive tutorial explores the origin of Airy diffraction patterns formed by the rear aperture of the microscope objective and observed at the intermediate image plane. Airy Pattern Basics - The three-dimensional diffraction pattern formed by a circular aperture near the focal point in a well-corrected microscope is symmetrically periodic along the axis of the microscope as well as radially around the axis. When this diffraction pattern is sectioned in the focal plane, it is observed as the classical two-dimensional diffraction spectrum known as the Airy pattern. This tutorial explores how Airy pattern size changes with objective numerical aperture and the wavelength of illumination; it also simulates the close approach of two Airy patterns. Numerical Aperture and Image Resolution - The Airy pattern formed at the microscope intermediate image plane is a three-dimensional diffraction image, which is symmetrically periodic both along the optical axis of the microscope, and radially across the image plane. This diffraction pattern can be sectioned in the focal plane to produce a two-dimensional diffraction pattern having a bright circular disk surrounded by an alternating series of bright and dark higher-order diffraction rings whose intensity decreases as they become further removed from the central disk. Usually only two or three of the circular luminous rings are visible in the microscope this number is dependent upon the objective numerical aperture , because the higher orders are absorbed by stray light and are not visible. Conoscopic Images of Periodic Gratings - The purpose of this tutorial is to explore the reciprocal relationship between line spacings in a periodic grid simulating a specimen and the separation of the conoscopic image at the objective aperture plane. When the line grating has broad periodic spacings, several images of the condenser iris aperture appear in the objective rear focal plane. If white light is used to illuminate the line grating, higher order diffracted images of the aperture appear with a blue fringe closer to the zeroth order central image and with a green-yellow-red spectrum appearing further out towards the objective aperture periphery. Spatial Frequency and Image Resolution - When a line grating is imaged in the microscope, a series of conoscopic images representing the condenser iris opening can be seen at the objective rear focal plane. This tutorial explores the relationship between the distance separating these iris opening images and the periodic spacing spatial frequency of lines in the grating. Airy Patterns and the Rayleigh Criterion - Airy diffraction pattern sizes and their corresponding radial intensity distribution functions are sensitive to both objective numerical aperture and the wavelength of illuminating light. For a well-corrected objective with a uniform circular aperture, two adjacent points are just resolved when the centers of their Airy patterns are separated by a distance r. This tutorial examines how Airy disk sizes, at the limit of optical resolution, vary with changes in objective numerical aperture and illumination wavelength and how these changes affect the resolution of the objective. Periodic Diffraction Images - When a microscope objective forms a diffraction-limited image of an object, it produces a three-dimensional diffraction pattern that is periodic both along the optical axis and laterally within the intermediate image plane. This tutorial explores diffraction images produced by a periodic object at several focal depths. Electromagnetic Radiation Electromagnetic Radiation - This interactive tutorial explores the classical representation of an electromagnetic wave as a sine function, and enables the visitor to vary amplitude and wavelength to demonstrate how this function appears in three dimensions. Basic Electromagnetic Wave Properties - Electromagnetic radiation is characterized by a broad range of wavelengths and frequencies, each associated with a specific intensity or amplitude and quantity of energy. This interactive tutorial explores the relationship between frequency, wavelength, and energy, and enables the visitor to adjust the intensity of the radiation and to set the wave into motion. Electromagnetic Wave Propagation - Electromagnetic waves can be generated by a variety of methods, such as a discharging spark or by an oscillating molecular dipole. Visible light is a commonly studied form of electromagnetic radiation, and exhibits oscillating electric and magnetic fields whose amplitudes and directions are represented by vectors that undulate in phase as sinusoidal waves in two mutually perpendicular orthogonal planes. This tutorial explores propagation of a virtual electromagnetic wave and considers the orientation of the magnetic and electric field vectors. Electron Excitation and Emission - Electrons can absorb energy from external sources, such as lasers, arc-discharge lamps, and tungsten-halogen bulbs, and be promoted to higher energy levels. This tutorial explores how photon energy is absorbed by an electron to elevate it into a higher energy level and how the energy can subsequently be released, in the form of a lower energy photon, when the electron falls back to the original ground state. Jablonski Diagram - Fluorescence activity can be schematically illustrated with the classical Jablonski diagram, first proposed by Professor Alexander Jablonski in to describe absorption and emission of light. This tutorial explores how electrons in fluorophores are excited from the ground state into higher electronic energy states and the events that occur as these excited molecules emit photons and fall back into lower energy states. Tuning a Radio Wave Receiver - Variable capacitors are used in conjunction with inductor coils in tuning circuits of radios, television sets, and a number of other devices that must isolate electromagnetic radiation of selected frequencies in the radio wave region. This interactive tutorial explores how a variable capacitor is coupled to a simple antenna transformer circuit to tune a radiofrequency spectrum. Interference of Light Waves Wave Interactions in Optical Interference - The classical method of describing interference includes presentations that depict the graphical recombination of two or more sinusoidal light waves in a plot of amplitude, wavelength, and relative phase displacement. In effect, when two waves are added together, the resulting wave has an amplitude value that is either increased through constructive interference, or diminished through destructive interference. This interactive tutorial illustrates the effect by considering a pair of light waves from the same source that are traveling together in parallel, but can be adjusted with respect to coherency phase relationship , amplitude, and wavelength. Interference Phenomena in Soap Bubbles - Most of us observe some type of optical interference almost every day, but usually do not realize the events in play behind the often-kaleidoscopic display of color produced when light waves interfere with each other. One of the best examples of interference is demonstrated by the light reflected from a film of oil floating on water. Another example is the thin film of a soap bubble, which reflects a spectrum of beautiful colors when illuminated by natural or artificial light sources. This interactive tutorial explores how the interference phenomenon of light reflected by a soap bubble changes as a function of film thickness. Because he believed that light was composed of waves, Young reasoned that some type of interaction would occur when two light waves met. This interactive tutorial explores how coherent light waves interact when passed through two closely spaced slits. Interference Between Parallel Light Waves - If the vibrations produced by the electric field vectors which are perpendicular to the propagation direction from waves that are parallel to each other in effect, the vectors vibrate in the same plane , then the light waves may combine and undergo interference.

BEYOND THE VISIBLE AND THE MATERIAL pdf

3: Beyond the Visible and the Material : Laura M. Rival :

Beyond the Visible and the Material: The Amerindianization of Society in the Work of Peter Rivii'Are by Laura M. Rival, Neil L. Whitehead Focusing on the anthropological development of Amazonia, this volume explores the legacy of Peter RiviÃ¨re, a recently retired Professor of Social Anthropology, University of Oxford.

Hence, it can be seen that the behavior of the refractive index is dependent on the association of these two parameters, as well as their quantitative values. This ability then allows for intentional determination of the refractive index. For example, in , Victor Veselago analytically determined that light will refract in the reverse direction negatively at the interface between a material with negative refractive index and a material exhibiting conventional refractive index. Therefore, his work was ignored for three decades. However, in each of these cases permeability remains always positive. But the inherent drawback is they are difficult to find above terahertz frequencies. In any case, a natural material that can achieve negative values for permittivity and permeability simultaneously has not been found or discovered. Hence, all of this has led to constructing artificial composite materials known as metamaterials in order to achieve the desired results. A metamaterial developed to exhibit negative-index behavior is typically formed from individual components. Each component responds differently and independently to a radiated electromagnetic wave as it travels through the material. Since these components are smaller than the radiated wavelength it is understood that a macroscopic view includes an effective value for both permittivity and permeability. This material exhibited unusual physical properties that had never been observed in nature. These materials obey the laws of physics , but behave differently from normal materials. In essence these negative-index metamaterials were noted for having the ability to reverse many of the physical properties that govern the behavior of ordinary optical materials. Until the demonstration of negative refractive index for microwaves by the UCSD team, the material had been unavailable. Advances during the s in fabrication and computation abilities allowed these first metamaterials to be constructed. Thus, the "new" metamaterial was tested for the effects described by Victor Veselago 30 years earlier. Studies of this experiment, which followed shortly thereafter, announced that other effects had occurred. To achieve a negative index of refraction, however, permittivity with negative values must occur within the same frequency range. The artificially fabricated split-ring resonator is a design that accomplishes this, along with the promise of dampening high losses. With this first introduction of the metamaterial, it appears that the losses incurred were smaller than antiferromagnetic, or ferromagnetic materials. At demonstrated frequencies, pulses of electromagnetic radiation moving through the material in one direction are composed of constituent waves moving in the opposite direction. The design was such that the cells, and the lattice spacing between the cells, were much smaller than the radiated electromagnetic wavelength. Hence, it behaves as an effective medium. Furthermore, the characteristic of negative effective permeability evinced by this medium is particularly notable, because it has not been found in ordinary materials. In addition, the negative values for the magnetic component is directly related to its left-handed nomenclature, and properties discussed in a section below. The split-ring resonator SRR , based on the prior theoretical article, is the tool employed to achieve negative permeability. This first composite metamaterial is then composed of split-ring resonators and electrical conducting posts. In addition, early NIMs were fabricated from opaque materials and usually made of non-magnetic constituents. As an illustration, however, if these materials are constructed at visible frequencies , and a flashlight is shone onto the resulting NIM slab, the material should focus the light at a point on the other side. This is not possible with a sheet of ordinary opaque material. More recently as of [update] , layered "fishnet" NIM materials made of silicon and silver wires have been integrated into optical fibers to create active optical elements. There are two requirements to achieve a negative value for refraction. Second, negative values for both permittivity and permeability must occur simultaneously over a common range of frequencies. These are designed to resonate at designated frequencies to achieve the desired values. Looking at the make-up of the split ring, the associated magnetic field pattern from the SRR is dipolar. Atoms exist on the scale of picometers. The splits in the rings create a dynamic where the SRR unit cell can be made resonant at radiated wavelengths much larger than the diameter of the rings. If the rings were closed, a half wavelength boundary would be electromagnetically imposed as a requirement for resonance. It is there to generate a large capacitance , which occurs in the small gap. This capacitance substantially decreases the resonant frequency while concentrating the electric field. The individual SRR depicted on the right had a resonant frequency of 4. The radiative losses from absorption and reflection are noted to be small, because the unit dimensions are much smaller than the free space , radiated wavelength. Properties unique in comparison to ordinary or conventional materials begin to emerge. The presence of a MHz gap between 4. Please see the image in the previous section Furthermore, when wires are added symmetrically between the split rings, a passband occurs within the previously forbidden band of the split ring dispersion curves. Mathematically, the dispersion relation leads to a band with negative group velocity everywhere, and a bandwidth that is independent of the plasma frequency , within the stated conditions. The permeability was verified to be the region of the forbidden band, where the gap in propagation occurred â€" from a finite section of material. In addition, a later work determined that this first metamaterial had a range of frequencies over which the refractive index was predicted to be negative for one direction of propagation see ref [1]. Other predicted electrodynamic effects were to be investigated in other research. From the conclusions in the above section a left-handed material LHM can be defined. Real values are then derived to denote the value of negative index of refraction, and wave vectors. This means that in practice losses will occur for a given medium used to transmit electromagnetic radiation such as microwave , or infrared frequencies, or visible light â€" for example. In this instance, real values describe either the amplitude or the intensity of a transmitted wave relative to an incident wave, while ignoring the negligible loss values. In other words, this structure exhibited left-handed propagation in one dimension. He predicted that intrinsic to a material, which manifests negative values of effective permittivity and permeability , are several types of reversed physics phenomena. In the beginning of the existence of a higher-dimensional structure was reported. It was two-dimensional and demonstrated by both experiment and numerical confirmation. It was an LHM , a composite constructed of wire strips mounted behind the split-ring resonators SRRs in a periodic configuration. It was created for the express purpose of being suitable for further experiments to produce the effects predicted by Veselago. Split-ring resonators are on the front and right surfaces of the square grid, and single vertical wires are on the back and left surfaces. As discussed previously above , the first metamaterial had a range of frequencies over which the refractive index was predicted to be negative for one direction of propagation. It was reported in May The experiment used a waveguide to help transmit the proper frequency and isolate the material. This test achieved its goal because it successfully verified a negative index of refraction. However, in this experiment negative index of refraction material is in free space from Although the radiated frequency range is about the same, a notable distinction is this experiment is conducted in free space rather than employing waveguides. The transmission of an incident field, composed of many frequencies, from an isotropic nondispersive material into an isotropic dispersive media is employed. The direction of power flow for both nondispersive and dispersive media is determined by the time-averaged Poynting vector. Negative refraction was shown to be possible for multiple frequency signals by explicit calculation of the Poynting vector in the LHM. In a NIM the wavefront travels toward the source. However, the magnitude and direction of the flow of energy essentially remains the same in both the ordinary material and the NIM. Hence, the sign of the intrinsic impedance is still positive in a NIM. In a passive metamaterial medium this determines a negative real and imaginary part of the refractive index. In ordinary optical materials, the curl equation for the electric field show a "right hand rule" for the directions of the electric field E, the magnetic induction B, and wave propagation, which goes in the direction of wave vector k. This means that when permeability is less than zero, e. Furthermore, the relations of vectors E, H, and k form a "left-handed" system â€" and it was Veselago who coined the term "left-handed" LH material, which is in wide use today Photonic crystals, like many other known systems, can exhibit unusual propagation behavior such as reversal of phase and group velocities. But, negative refraction does not occur in these systems, and not yet realistically in photonic crystals. In Pavel Cherenkov discovered a coherent radiation that occurs when certain types of media are bombarded by fast moving electron beams. In a theory built around CR stated that when charged particles, such as electrons, travel through a medium at speeds faster than the speed of light in the medium only then will CR radiate. As the CR occurs, electromagnetic radiation is emitted in a cone shape, fanning out in the forward direction. CR and the theory has led to a large array of applications in high energy physics. A notable application are the Cherenkov counters. These are used to determine various properties of a charged particle such as its velocity, charge, direction of motion, and energy. These properties are important in the identification of different particles. It has been difficult to experimentally prove the reversed Cherenkov radiation. One direction in subwavelength focusing proceeded with the use of negative-index metamaterials, but based on the enhancements for imaging with surface plasmons. In another direction researchers explored paraxial approximations of NIM slabs. A change from a conventional refractive index to a negative value gives incorrect results for conventional calculations, because some properties and effects have been altered. Shifting the refractive index to a negative value may be a cause to revisit or reconsider the interpretation of some norms , or basic laws. Patent 6,, , titled "Left handed composite media. The invention achieves simultaneous negative permittivity and permeability over a common band of frequencies. The material can integrate media which is already composite or continuous, but which will produce negative permittivity and permeability within the same spectrum of frequencies. Different types of continuous or composite may be deemed appropriate when combined for the desired effect. However, the inclusion of a periodic array of conducting elements is preferred. The array scatters electromagnetic radiation at wavelengths longer than the size of the element and lattice spacing. The array is then viewed as an effective medium.

4: YourNextPresent: Present Ideas (USA)

Beyond the Visible and the Material The Amerindianization of Society in the Work of Peter RiviÃ¨re Edited by Laura M. Rival and Neil L. Whitehead.

The bright object on the lower right is Jupiter, just above Antares. Dark regions within the band, such as the Great Rift and the Coalsack , are areas where interstellar dust blocks light from distant stars. The area of sky that the Milky Way obscures is called the Zone of Avoidance. The Milky Way has a relatively low surface brightness. Its visibility can be greatly reduced by background light, such as light pollution or moonlight. The sky needs to be darker than about From Sagittarius, the hazy band of white light appears to pass around to the galactic anticenter in Auriga. The band then continues the rest of the way around the sky, back to Sagittarius, dividing the sky into two roughly equal hemispheres. Because of this high inclination, depending on the time of night and year, the arch of the Milky Way may appear relatively low or relatively high in the sky. The Milky Way arching at a high inclination across the night sky. This composited panorama was taken at Paranal Observatory in northern Chile. The bright object is Jupiter in the constellation Sagittarius , and the Magellanic Clouds can be seen on the left. Galactic north is downward. At the low end of the estimate range, the mass of the Milky Way is 5. A dark matter halo is spread out relatively uniformly to a distance beyond one hundred kiloparsecs kpc from the Galactic Center. Mathematical models of the Milky Way suggest that the mass of dark matter is 1â€”1. As a comparison, the neighboring Andromeda Galaxy contains an estimated one trillion stars. This disk has at least a comparable extent in radius to the stars, [63] whereas the thickness of the gas layer ranges from hundreds of light years for the colder gas to thousands of light years for warmer gas. Rather, the concentration of stars decreases with distance from the center of the Milky Way. For reasons that are not understood, beyond a radius of roughly 40, ly 13 kpc from the center, the number of stars per cubic parsec drops much faster with radius. Hence, such objects would probably be ejected from the vicinity of the Milky Way. The galactic centre is in the middle of the view, with galactic north up. Viewed from above, the central narrow bar that is responsible for this structure appears clearly, as would many spiral arms and their associated dust clouds. The mass distribution within the Milky Way closely resembles the type Sbc in the Hubble classification , which represents spiral galaxies with relatively loosely wound arms. Galactic quadrants Main article: Galactic quadrant A galactic quadrant, or quadrant of the Milky Way, refers to one of four circular sectors in the division of the Milky Way. In actual astronomical practice, the delineation of the galactic quadrants is based upon the galactic coordinate system , which places the Sun as the origin of the mapping system. This value is estimated using geometric -based methods or by measuring selected astronomical objects that serve as standard candles , with different techniques yielding various values within this approximate range. Viewed from the Andromeda Galaxy, it would be the brightest feature of the Milky Way. The diameter of each of the bubbles is about 25, light-years 7. Spiral galaxy Outside the gravitational influence of the Galactic bars, the structure of the interstellar medium and stars in the disk of the Milky Way is organized into four spiral arms. Observed normal lines and extrapolated dotted lines structure of the spiral arms of the Milky Way, viewed from "north" of the galaxy. Stars generally move clockwise in this view.

5: Glossary of Window and Door Terminology | Marvin Family of Brands

Note: Citations are based on reference standards. However, formatting rules can vary widely between applications and fields of interest or study. The specific requirements or preferences of your reviewing publisher, classroom teacher, institution or organization should be applied.

The examples we discuss here are ones where the radiation is either visible or put to some use. When a gamma ray collides with a particle an electron, or an atomic nucleus , it can lose energy in the collision: This process is called Compton scattering. Because the material in the star is so dense, this process happens many, many times, and before the gamma ray can reach the surface of the star its energy is comparable to the kinetic energies the particles already have. The surface of the star called the photosphere is rather nonuniform in its temperature. How would you measure the different temperatures? By analyzing the spectra of the blackbody radiation emitted by the different regions. Other stars are hotter and so appear bluer , or cooler and so appear redder. Generally, very young stars are very hot and have a noticeable blue color. Older stars, including red giants, are cooler, and have a noticeable color. The brightest of the two stars in Sirius is a very hot, blue star, whose color is also quite noticeable. The spectrum of a star, including the Sun, is not quite that of an ideal blackbody. The fact that the photosphere contains materials at different temperatures produces a spectrum that is not quite the shape of the ideal blackbody spectrum. Most prominent among these are hydrogen and helium. However, the atmospheres of stars such as the Sun also contain a wide variety of heavier elements, including significant amounts of carbon, nitrogen, oxygen, silicon, potassium, sodium, iron and nickel. However, these materials absorb some of the radiation at certain wavelengths. These absorption lines were first noticed by Fraunhofer in , who cataloged some in the visible region of the electromagnetic spectrum. Beyond the atmosphere of most stars is a corona. Interestingly, the temperature of the corona is much greater than even that of the photosphere. It is not currently known why that is, but understanding this is one of the principal objectives of the international Solar and Heliospheric Observatory, SOHO, which has been operating since The Sun is a relatively strong source of x-rays and radio frequency radiation, which are both connected with storm and magnetic activity on the sun, and whose spectra deviate considerably from blackbody radiation. The electrical current I flows in response to an applied electrical potential difference voltage difference, V between two points like two ends of a segment of wire. The resistance R of the material is defined by the ratio of the electrical potential difference to the current: All of these are equivalent. P is the number of Joules per second that is added to the kinetic energy of the atoms making up the material. Increased atomic kinetic energy means increased temperature. If the material were not at the same time getting rid of some of this energy, its temperature would just keep on increasing and increasing until it melted or vaporized. A conductor whether highly resistive or not contains electrons that are quite free to move about. When the voltage difference is applied across a region of the material, an electric field is established at all places in the material. The electrons, being electrically charged, experience a force when they are in this field, and so they begin to accelerate toward the electrically relatively positive end of the material. While they are in motion, the electrons will inevitably start to crash into the atoms making up the material, and in these collisions some kinetic energy will be lost by the electrons and gained by whatever they are crashing into. This is a familiar phenomenon; when electrical current is run through a wire, the wire starts to become warm. If it is not too resistive, and if only a small amount of current is being drawn through it, it will not warm up very much. If this is an extension cord, you do not want it to warm up too much, of course. It is sometimes desirable, however, to have a resistive conductor heat up. One example is the incandescent light bulb. This consists of a sealed glass container with most of the air taken out of it, in which is a coil of resistive wire. The ends of this coil are connected to the outside of the container, so that a large voltage can be applied to it from the household electric supply. When that electrical voltage is supplied that is, when someone turns on the light , the current flowing through the wire heats the wire to a high temperature K , and the wire glows. Light bulbs of inferior quality whose wire is not as resistive, or whose glass container still has a lot of gas in it tend to appear to have a reddish glow, since the wire filament is not as hot. When the electric supply is turned off, the filament cools. Often this happens over a long enough period of time that the glow can be observed to become both less and less intense, and redder, until its glow finally cannot be perceived. The filament cools because its blackbody radiation is carrying energy away into the space around the lightbulb. Almost all electrical heating devices, including hair driers, clothes driers, space heaters, electric baseboard heaters, electric stove and oven heating elements, work on this same principle. As this gets hotter, the color appears more and more orange. If the temperature were to be allowed to get high enough to give a yellower glow, the burner would be hot enough to melt most cookware. This is not because the burner is heating the air, which is heating your hand. This is often called radiant heat. It is why you can walk by a parked car and sense whether it has been driven quite recently so its engine compartment is still warm. Most of the heat transferred into the room, and to the people in it, is transferred as blackbody radiation, and not as a result of the radiator heating the air that is in contact with it, although that certainly does happen as well. You also experience radiant heating when you are next to hot coals, like the burning embers of a fire. The combustion process is an exothermic chemical reaction in which the fuel the paraffin , a mixture of chemical compounds comprised mostly of carbon and hydrogen atoms, is combined with oxygen from the air to form carbon dioxide CO2 and water H2O. The heat evolved by this process heats up and vaporizes some of the fuel, and also heats up the oxygen, nitrogen, and other atmospheric gases. An ordinary candle flame is actually quite oxygen starved, and the vaporized fuel molecules, at the elevated temperatures in the flame itself, wind up combining with other fuel molecules. Incomplete combustion of fuel molecules also results in the formation of small carbon particles. Together, the polymerized fuel and carbon particles make up soot. And when the soot is formed, it is very hot, and emits a great deal of blackbody radiation. This radiation appears reddish-orangish-yellowish. Chemical reactions in the flame plasma also emit radiation, so the emission spectrum of a complete candle flame can be quite complex. However, the characteristic continuum spectrum of the blackbody radiation from the soot is the dominant feature. These torches have two supply hoses. One hose feeds fuel natural gas, propane, or acetylene to the torch, while the other feeds a supply of oxygen. When the torch is first lit, the oxygen feed is turned way down or even off, and you will see a bright yellow flame shooting out of the torch. This is essentially the same yellow flame as in the candle. The fuel is burning in oxygen poor conditions, relying on oxygen from the air diffusing in toward the region the previously burned fuel has depleted. When the oxygen supply is turned on, the flame is force fed with oxygen, and the flame now has a blue glow that is not nearly as bright as the yellow flame. In the oxygen rich flame there is essentially no soot production, so, even though there are gases at a very high temperature, there is nothing there like the soot particles that have sufficient emissivity to produce a great deal of blackbody radiation. The blue glow of the flame is not blackbody radiation, but rather is due to chemical reactions going on in the flame. As blackbody radiators, they emit considerable amounts of energy roughly W for an average adult at rest in the infrared region of the spectrum. Of course, at the same time, their surfaces are absorbing infrared radiation from their surroundings. Night vision equipment allows one to detect the presence of people and other warm animals and objects by using a kind of video camera that is sensitive to infrared radiation. The signal produced by that camera is fed into a video monitor that presents a visible image. In this image, you see a person as a glowing object, rather than, as you are accustomed to, an object that reflects the ambient light that falls on him. The fact that people are emitters of infrared radiation is also used in a wide variety of anti-intruder devices and in automatic light switches usually for outdoor lighting. These have infrared photosensors. When something emitting infrared radiation passes in front, the photosensor causes an electrical circuit to close, and this is in turn used to set off an alarm, turn on a light, or do something else. This results in the warming of those materials. When the night comes, the surface is no longer being heated by the Sun, but it is still radiating, and, since it is warmer than the air around it, it continues to radiate, gradually cooling it off. If clouds are present over the surface at night, their effect is to reflect some fraction of the radiation that was emitted by the surface back down toward it. Over the course of the night, this has the effect of causing the surface to cool much more slowly. This is why clear sky nights tend to be much colder than cloudy sky nights. An ideal blackbody is a hypothetical object that absorbs all radiation incident on its surface. Physical theory predicts the spectral irradiance emitted by an ideal blackbody at a certain temperature T. Notice that in this figure each major tick mark represents a factor of 10 difference from the adjacent tick mark. That is, both the wavelength and irradiance scales are logarithmic. One hallmark feature of blackbody radiation is that it has a continuous spectrum. That is, the irradiance curve is smooth. Nonideal blackbodies emit less radiation any given wavelength than an ideal blackbody would. Ideal blackbodies do not actually exist. However the radiant energy emitted by many objects, such as Earth and the Sun, can be closely matched by the emission of a blackbody at the same temperature. The amount of emission of a blackbody at each wavelength depends only on the absolute temperature of the blackbody. Remember that heat is a form of energy so it follows that if a blackbody is heated by absorption of more energetic photons or through other processes such as conduction it will emit more energetic photons. When photons are emitted over a continuous range of the spectrum as we see from these curves, we call it continuum radiation. What happens to the peak in each curve as you go to higher temperatures? You can see that the peak in each curve shifts to shorter wavelengths higher energies with increasing temperature. Two important related properties of objects are their absorptivity and emissivity. The absorptivity, a, of an object is defined as the fraction of incident radiation that is absorbed by an object at a specific wavelength. The emissivity, e, of a material is the fraction of radiation emitted at a specific wavelength compared to that emitted by a blackbody at the same temperature. As we know from before, an ideal blackbody absorbs all incident radiation and emits the maximum amount possible at each wavelength.

6: Beyond the visible spectrum

Beyond the visible and the material: the amerindianization of society in the work of Peter RivÃ¬ere. Responsibility edited by Laura Rival and Neil Whitehead.

7: Chapter 4 Section 6

Beyond the Visible and the Material by Laura M. Rival, , available at Book Depository with free delivery worldwide.

8: Milky Way - Wikipedia

Other information. A collection of 14 papers contributed by worldwide colleagues in honor of RiviÃ¨re's work as he nears retirement from the Oxford Institute of Social and Cultural Anthropology.

9: Negative-index metamaterial - Wikipedia

Beyond the Visible and the www.enganchecubano.com - Ebook download as PDF File .pdf), Text File .txt) or read book online. Scribd is the world's largest social reading and publishing site. Search Search.

BEYOND THE VISIBLE AND THE MATERIAL pdf

Chemistry of wine flavor Bell and Howell threading, rewinding A Pro/manufacturing tutorial French life and its problems. Human rights and King Andy, or, The apostate president Life among the Yanomami Mel Bay The Essential Drumset Method Bicycling magazines bicycle touring in the 90s Electronic properties of materials hummel Animation in html css and javascript Along parallel lines The reviews reviewed Challenges for the management of HIV-infected pregnant women in resource constrained settings Stephen Mep Advances in tourism destination marketing Made easy digital electronics book Catholic Apologetics Medieval Irish saints lives No More Watno Dur Homestay in Japan A series of unfortunate events 6 ARE THE MERCURY FILLING MATERIALS SAFE? 9 How to Use Your Hyperbooks Ancestrality, memory, and citizenship A diamond in the dust Future prospects: tinkering with Utopia. Invisible as the wind Crimes and punishment A Hardys Day Night (Hardy Boys Graphic Novels: Undercover Brothers #10) Waldorf Education (Rudolf Steiners Ideas in Practice Series) The Paranormal Source Book Wessex from the air Never Too Old To Climb Walls 75 ings plus 10th edition The hotel market in Boston and ten other cities: the outlook for Boston to the year 2005. Singularity station American Furniture 1996 (American Furniture) Do school-to-work programs help the / Rationalism vs. empiricism Microsoft office personal instruction book A concordance to The complete poems of John Wilmot, Earl of Rochester