



Que es el efecto fotoelectrico

Everything learned in classical physics was turned on its head as physicists explored ever smaller realms and discovered quantum effects. Among the first of these discoveries was the photoelectric effect. In the early 1900s, the results of this effect failed to match classical predictions and were only explainable with quantum theory, opening up a whole new world for physicists. Today, the photoelectric effect has many practical applications as well. From medical imaging to the production of clean energy, the discovery and applications that go well beyond simply understanding the science. When light, or electromagnetic radiation, hits a material such as a metal surface, that material sometimes emits electrons, called photoelectrons. This is essentially because the atoms in the material are absorbing the radiation by jumping to higher energy levels. If the energy absorbed is high enough, the electrons leave their home atom entirely. This process is sometimes also called photoemission because incident photons (another name for particles of light) are the direct cause of the emission of electrons. Because electrons have a negative charge, the metal plate from which they were emitted is left ionized. What was most special about the photoelectric effect, however, was that it did not follow classical predictions. The way in which the electrons were emitted, the number that were emitted and how this changed with intensity of light all left scientists scratching their heads initially. The original predictions as to the results of the photoelectric effect made from classical physics included the following: 1. Energy transfers from incident radiation to the electrons. It was assumed that whatever energy is incident upon the material would be directly absorbed by the electrons in the atoms, regardless of wavelength. This makes sense in the classical mechanics paradigm: Whatever you pour into the bucket fills the bucket by that amount. 2. Changes in light intensity should yield changes in kinetic energy of electrons. If it is assumed that electrons are absorbing whatever radiation is incident upon them, then more of the same radiation should give them more energy accordingly. Once the electrons have left the bounds of their atoms, that energy is seen in the form of kinetic energy. 3. Very low-intensity light should yield a time lag between light absorption and emission of electrons. This would be because it was assumed that electrons must gain enough energy to leave their home atom, and low-intensity light is like adding energy to their energy "bucket" more slowly. It takes longer to fill, and hence it should take longer to fill, and hence it should take longer to fill. predictions. This included the following: 1. Electrons were released only when the incident light reached or exceeded a threshold frequency, or wavelength of the light itself, was much more important. 2. Changes in intensity did not yield changes in kinetic energy of electrons. They changed only the number of electrons emitted. Once the threshold frequency was reached, increasing the intensity did not add more energy; there were just more of them. 3. There was no time lag at low intensities. There seemed to be no time required to "fill the energy bucket" of any given electron. If an electron was to be emitted, it was emitted immediately. Lower intensity had no effect on kinetic energy or lag time; it simply resulted in fewer electrons being emitted. The only way to explain this phenomenon was to invoke quantum mechanics. Think of a beam of light not as a wave, but as a collection of discrete wave packets called photons. The photons all have distinct energy values that correspond to the frequency and wavelength of the light, as explained by wave-particle duality. In addition, consider that the electrons are only able to jump between discrete energy states. They can only have specific energy values, but never any values in between. Now the observed phenomena can be explained as follows: 1. Electrons are released only when they absorb very specific sufficient energy packet (photon energy) will be released. None are released if the frequency of the incident light is too low regardless of intensity because none of the energy packets are individually big enough. 2. Once the threshold frequency is exceeded, increasing intensity only increases the number of electrons themselves because each emitted electron absorbs one discrete photon. Greater intensity means more photons, and hence more photoelectrons. 3. There is no time delay even at low intensity as long as the frequency is high enough because as soon as an electron gets the right energy, it is the minimum energy needed to remove an electron from a solid. The formula for the work function is given by: \(W = -e\phi - E\) Where -e is the electrostatic potential in the vacuum nearby the surface and E is the Fermi level of electrons in the material. Electrostatic potential is measured in volts and is a measure of the electric potential energy per unit charge. Hence the first term in the expression, -eq, is the electric potential energy of an electron when the atom is in its ground state. Closely related to the work function is the threshold frequency. This is the minimum frequency at which incident photons will cause the emission of electrons. Frequency is directly related to energy (higher frequency must be reached. Above the threshold frequency, the kinetic energy of the electrons depends on the frequency and not the intensity of the light. Basically the energy of a single photon will be transferred entirely to a single electron. A certain amount of that energy is used to eject the electrons will be emitted, not that those emitted will have any more energy. The maximum kinetic energy of emitted electrons can be found via the following equation: $(K_{max} = h(f - f_0))$ Where _Kmax_ is the maximum kinetic energy of the photoelectron, h is Planck's constant = 6.62607004 × 10-34 m2kg/s, f is the frequency of the light and _f0_ is the threshold frequency. You can think of the discovery of the photoelectric effect as happening in two stages. First, the discovery of the photoelectric effect as happening in two stages. the emission of photoelectrons from certain materials as a result of incident light, and second, the determination that this effect does not obey classical physics at all, which led to many important underpinnings of our understanding of quantum mechanics. Heinrich Hertz first observed the photoelectric effect in 1887 while performing experiments with a spark gap generator. The setup involved two pairs of metal spheres. Sparks generated between the first set of spheres would induce sparks to jump between the second set, thus acting as transducer and receiver. Hertz was able to increase the sensitivity of the setup by shining light on it. Years later, J.J. Thompson discovered that the increased sensitivity resulted from the light causing the electrons to be ejected. While Hertz's assistant Phillip Lenard determined that the intensity did not affect the kinetic energy of the photoelectrons, it was Robert Millikan who discovered the threshold frequency. Later, Einstein was able to explain the strange phenomenon by assuming the quantization of energy. Albert Einstein was awarded the Nobel Prize in 1921 for his discovery of the law of the photoelectric effect, and Millikan won the Nobel Prize in 1923 also for work related to understanding the photoelectric effect. The photoelectric effect. The photoelectric effect has many uses. One of those is that it allows scientists to probe the electron energy levels in matter by determining the threshold frequency at which incident light causes emission. Photomultiplier tubes making use of this effect is in the construction of solar panels. Solar panels are arrays of photovoltaic cells, which are cells that make use of electrons ejected from metals by solar radiation to generate current. As of 2018, nearly 3 percent of the world's energy is generated by solar panels, but this number is expected to grow considerably over the next several years, especially as the efficiency of such panels increases. But most important of all, the discovery and understanding of the photoelectric effect laid the groundwork for the field of quantum mechanics and a better understanding of the nature of light. There are more complicated than others. A simple experiment demonstrates the photoelectric effect with an electroscope and a UV-C lamp providing ultraviolet light. Place negative charge on the electroscope so that the needle deflects. Then, shine the UV-C lamp. Light from the electroscope and discharge it. You can tell this happens by seeing the needle's deflection reducing. Note, however, that if you tried the same experiment with a positively charged electroscope, it wouldn't work. There are many other possible ways to experiment with the photoelectric effect. Several setups involve a photocell consisting of a large anode that, when hit with incident light, will release electrons that are picked up by a cathode. If this setup is connected to a voltmeter, for example, the photoelectric effect will become apparent when shining the light creates a voltage. More complex setups allow for more accurate measurement and even allow you to determine the work function and threshold frequencies for different materials. See the Resources section for links. TOWELL, GAYLE. "Photoelectric Effect: Definition, Equation & Experiment" sciencing.com, . 28 December 2020. APA TOWELL, GAYLE. (2020, December 28). Photoelectric Effect: Definition, Equation & Experiment. sciencing.com. Retrieved from Chicago TOWELL, GAYLE. Photoelectric Effect: Definition, Equation & Experiment last modified August 30, 2022. El efecto fotoeléctrico domina a bajas energías de rayos gamma .El efecto fotoeléctrico conduce a la emisión de fotoelectrones de la materia cuando la luz (fotones) brilla sobre ellos. La energía máxima
que puede recibir un electrón en cualquier interacción es hv. Los electrones solo son emitidos por el efecto fotoeléctrico si el fotón alcanza o excede un umbral de energía. Un electrón libre (por ejemplo, de una nube atómica) no puede absorber toda la energía del fotón incidente. Esto es resultado de la necesidad de conservar tanto el impulso como la energía.La sección transversal para la emisión de n = 2 (L-shell) fotoelectrones. Esto es el resultado de la necesidad de conservar el impulso y la energía.En el efecto fotoeléctrico, un fotón experimenta una interacción con un electrón que está unido a un átomo. En esta interacción, el fotoelectrón expulsado (E e) es igual a la energía del fotoelectrón expulsado (E e) es igual a la energía del fotoelectrón expulsado (E e) es igual a la energía del fotoelectrón en su capa original (E b).E e = hv-E bPor lo tanto, los fotoelectrones solo son emitidos por el efecto fotoeléctrico si el fotón alcanza o excede un umbral de energía de unión del electrón, la función de trabajo del material. Para los rayos gamma con energía de unión del electrón se lleva la mayor parte de la energía del fotón incidente - hv. Después de una interacción fotoeléctrica, se crea un átomo absorbente ionizado con una vacante en una de sus capas unidas. Esta vacante se llenará rápidamente con un electrón de un caparazón con una vacante en una de sus capas unidas. crea otra vacante, que, a su vez, es ocupada por un electrón de una capa de energía de unión aún más baja. Por lo tanto, también se puede generar una cascada de rayos X más característicos . La probabilidad de emisión de unión aún más baja. Por lo tanto, también se puede generar una cascada de rayos X más característicos de unión aún más baja. electrón Auger. Efecto fotoeléctrico con fotones del espectro visible en la placa de potasio - umbral de energía - 2eVAbsorción gamma por un átomo. Fuente: laradioactivite.com/Secciones transversales de efecto fotoeléctrico . El mecanismo también se mejora para materiales de alto número atómico Z. No es simple derivar la expresión analítica para la probabilidad de absorción fotoeléctrica por unidad de masa es aproximadamente proporcional a: t (fotoeléctrico) = constante x Z N / E 3.5donde Z es el númerc atómico, el exponente n varía entre 4 y 5. E es la energía del fotón incidente. La proporcionalidad a las potencias más altas del número atómico Z es la razón principal para usar materiales con alto contenido de Z, como plomo o uranio empobrecido en escudos de rayos gamma. Aunque la probabilidad de absorción fotoeléctrica del fotón gamma disminuye en general, con el aumento del fotón energía, hay discontinuidades bruscas en la curva de la sección transversal. Estos se llaman «bordes de absorción»y corresponden a las energías de unión de los electrones de las capas unidas a los átomos. Para los fotones con la energía justo por encima del borde, la energía del fotón es suficiente para experimentar la interacción fotoeléctrica con el electrón de la capa unida, digamos K-shell. La probabilidad de tal interacción es justo por encima de este borde. Para los fotones gamma por debajo de este borde, la interacción con el electrón de la capa K es energéticamente imposible y, por lo tanto, la probabilidad cae abruptamente. Estos bordes se producen también en las energías de unión de los electrones de otras capas (L, M, N).Corte transversal de efecto fotoeléctrico... ..Este artículo se basa en la traducción automática del artículo original en inglés. 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The function, style, and means of writing characters have changed greatly over the past three millennia. Unlike letters in alphabets that directly reflect the sounds of speech, Chinese characters generally represent morphemes—the units of meaning in a language—often encoding aspects of pronunciation as well as meaning. Writing all of a language's frequently used vocabulary requires 2000-3000 characters; as of 2024, nearly 100,000 have been identified and included in The Unicode Standard. Characters; as of 2024, nearly 100,000 have been identified and printing with woodblocks or moveable type. More recent technologies using Chinese characters include telegraph codes and typewriters, as well as input methods and text encodings on computers. (Full article...) Recently featured: Ezra Pound Dracunculiasis Red-capped parrot Archive By email More featured articles About Fanciful illustration of Donus II ... that are a superior of the second parrot articles and type writers. Pope Donus II (pictured) never existed, despite being praised for his honorable conduct by later historians? ... that Topsy was the longest-surviving member of the United States Camel Corps? ... that Misato Haga began her career as a grid girl before she led her own motor racing team? ... that a science fiction short story from 1939 has been called an "eerie prediction" and "an uncanny, horrifyingly vivid prophecy" of The Holocaust? ... that Liechtenstein competed only in athletics at the 1968 Summer Olympics? ... that Sin and Flesh Brook gets its name from the murder and mutilation of a colonist during King Philip's War? ... that Sin and Flesh Brook gets its name from the murder and mutilation of a colonist during King Philip's War? ... that Sin and Flesh protagonists in many 1960s musical comedy films? ... that the steam corvette Gefle was the first ship of the Swedish Navy to be equipped with a propeller? ... that Greg Jensen went from world cow dung throwing champion to playing in the NFL? Archive Start a new article Nominate an article Nicusor Dan Author Banu Mushtag and translator Deepa Bhasthi win the International Booker Prize for Heart Lamp: Selected Stories. Nicusor Dan (pictured) is elected as president of Romania. In the Portuguese legislative election, the Democratic Alliance wins the most seats in parliament. Austria, represented by JJ with the song "Wasted Love", wins the Eurovision Song Contest. In the Philippines, the Sheldrake Domingos Maubere Nominate an article May 24: Aldersgate Day (Methodism) Eric XIV of Sweden 1567 - The mentally ill King Erik XIV of Sweden (pictured) and his guards murdered five incarcerated nobles, including some members of the influential Sture family. 1689 - The Act of Toleration became law, granting freedom of worship to English nonconformists under certain circumstances, but deliberately excluding Catholics. 1798 - The Irish Rebellion of 1798 began, with battles beginning in County Kildare and fighting later spreading across the country. 1963 - United States Attorney General Robert F. Kennedy met with African American author James Baldwin in an unsuccessful attempt to improve race relations. 2014 - A gunman involved in Islamic extremism opened fire at the Jewish Museum of Belgium in Brussels, killing four people. Robert Hues (d. 1632)Philip Pearlstein (b. 1974)Stormé DeLarverie (d. 2014) More anniversaries: May 23 May 24 May 25 Archive By email List of days of the year About Germanicus Julius Caesar (24 May 15 BC - 10 October AD 19) was an ancient Roman general and politician most famously known for his campaigns against Arminius in Germanicus was added to his full name in 9 BC when it was posthumously awarded to his father in honor of his victories in Germanicus became an official uncle Tiberius succeeded Augustus; ten years later, Tiberius succeeded Augustus; ten years member of the gens Julia, another prominent family, to which he was related on his mother's side. His connection to the Julii Caesares was further consolidated through a marriage between him and Agrippina the Elder, a granddaughter of Claudius This bust, depicting Germanicus in AD 4, is in the collection of the J. Paul Getty Museum. Sculpture credit: unknown; photographed by J. Paul Getty Museum Recently featured: The Cocoanuts In the Loge Black-crowned barwing Archive More featured pictures. announcements. Village pump - Forum for discussions about Wikipedia itself, including policies and technical issues. Site news - Sources of news about using or editing Wikipedia. Reference desk - Ask basic
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Many other Wikipedias are available; some of the largest are listed below. 1,000,000+ articles Bahasa Indonesia Bahasa Indonesia Bahasa Melayu Bân-lâm-gú Български Català Čeština Dansk Eesti Esperanto Euskara المال Retrieved from " 2 Calendar year Years Millennium 2nd millennium Centuries 15th century 16th century 16th century 17th century 16th century 17th century 16th century 17th century 16th cen leaders Colonial governors Religious leaders Birth and death categories Births - Deaths Establishments and disestablishments - Disestablishments and disestablishments - Disestablishments - Disestablishments and disestablishments - Disestablishments - Disestablishments - Disestablishments and disestablishments - Disestablishm calendar1488-1489Bengali calendar973-974Berber calendar2517English Regnal year9 Eliz. 1 - 10 Eliz. 1Buddhist calendar1559-7076Chinese calendar2111Burmese calendar929Byzantine calendar973-974Berber calendar2733Ethiopian calendar1559-7076Chinese calendar929Byzantine calendar973-974Berber calendar2733Ethiopian calendar1559-7076Chinese calendar929Byzantine calendar9 1560Hebrew calendar5327-5328Hindu calendars - Vikram Samvat1623-1624 - Shaka Samvat1488-1489 - Kali Yuga4667-4668Holocene calendar974-975Japanese calendar1567Igbo calendar1486-1487Julian calendar974-975Japanese calendar974-975Japanese calendar1567Igbo calendar974-975Japanese calendar974-975Japanese calendar1567Igbo calendar974-975Japanese calendar345 before ROC民前345年Nanakshahi calendar99Thai solar calendar2109-2110Tibetan calendar2109-2110Tibetan calendar2109-2110Tibetan calendar1567 (MDLXVII) was a common year starting on Wednesday of the Julian calendar. January 20 - Battle of Rio de Janeiro: Portuguese forces under the command of Estácio de Sá definitively drive the French out of Rio de Janeiro. January - A Spanish force under the command of Captain Juan Pardo establishes Fort San Juan, in the Native American settlement of Joara. The fort is the first European settlement in present-day North Carolina. February 4 - Prince Zhu Zaiji, son of the Jiajing Emperor, becomes the ascends the throne of Ming Dynasty China as the Longqing Emperor. [1] February 10 - Henry Stuart, Lord Darnley, husband of Mary, Queen of Scots, is murdered at the Provost's House in Kirk o' Field, Edinburgh. [2] March 13 -Battle of Oosterweel: A Spanish mercenary army surprises and kills a band of rebels near Antwerp in the Habsburg Netherlands, beginning the Eighty Years' War. April 9 - In India, the Battle of Thanesar is fought in what is now the Indian state of Haryana. The Mughal Emperor Akbar, with 300 men, wins a victory over more than 7,000 warriors of the Sanyasi Hindu sect. Akbar's army has two cannons, 400 rifles and 75 elephants. April 10 - Henrique I Nerika a Mpudi becomes the new ruler of the Congo and the northern portion of Angola. Henrique succeeds his nephew, Bernardo I of Kongo April 12 - The Earl of Bothwell is acquitted on charges of murder in the February 10 killing of Lord Darnley, the husband of Mary Queen of Scots. Upon acquittal he makes plans to become Mary's new husband. April 20 - The Ainslie Tavern Bond is signed by a group of Scottish clerics and nobles recommends Bothwell as an appropriate husband for Queen Mary and approves his acquittal after trial for the murder of her previous husband.[3] April 24 - Bothwell takes Mary prisoner at his castle at Dunbar after preventing her from traveling from her palace to Edinburgh, then rapes her. May 15 - Mary, Queen of Scots, marries the Earl of Bothwell, under duress.[4] May 24 - Sture Murders: The mentally unstable King Erik XIV of Sweden and his guards murder five incarcerated nobles at the Battle of Carberry Hill and imprisoned in Lochleven Castle. July 24 - Mary, Queen of Scots, is forced to abdicate, and replaced by her one-year-old son James VI. July 25 - The city of Santiago de León de Caracas is founded by Diego de Losada. July 29 - James VI is crowned at Stirling. August 22 - The Duke of Alba is sent to the Netherlands with a strong Spanish force, to suppress unrest there. He replaces Margaret of Parma as Governor of the Netherlands. Prince William of Orange is outlawed, and Lamoral, Count of Egmont imprisoned. September 9 At a dinner, the Duke of Alba arrests Lamoral, Count of Egmont and Philip de Montmorency, Count of Horn for treason. September 27 - After the 2-week Siege of Inabayama Castle, the Oda clan capture Gifu Castle from the Saito clan in Japan. September 27 - After the 2-week Siege of Inabayama Castle, the Oda clan capture of Condé and Gaspard de Coligny fail in an attempt to capture King Charles IX and his mother at Meaux. The Huguenots do capture several cities (including Orléans), and march on Paris. October 7 - Bible translations into Welsh: The New Testament is first published in Welsh, in William Salesbury's translation from the Greek. November 10 - Battle of Saint-Denis: Anne de Montmorency, with 16,000 Royalists, falls on Condé's 3,500 Huguenots. The Huguenots surprisingly hold on for some hours before being driven off. Montmorency is mortally wounded.[5] November 21 (10th day of 11th month, Eiroku 10) - In Japan, the Tōdai-ji Great Buddha Hall in the Nara Prefecture is destroyed after a six-month siege by Matsunaga Hisahide against Miyoshi Nagaitsu and the Miyoshi clan. Reconstruction of the temple does not take place until 140 years later in 1709. December 4 - Antão de Noronha, Viceroy of Portuguese India (now the Indian state of Goa) issues decrees prohibiting the public performance of Hindu rituals for marriages, cremations, and sacred thread wearing Other rules require all natives 15 or older to attend Christian religious services, upon penalty of punishment.[6] December 12 - The Scottish Parliament votes to approve the Act Anent the demission of the Crown in favor of her some James VI and the coronation of James, and confirms James as the legal ruler.[7] Mary's half brother, James Stewart, 1st Earl of Moray, is appointed as the regent to rule on behalf of the 18-month-old King of Scotland. In that Moray is absent from Scotland at the time, the Parliament appoints a committee of seven deputy regents to rule on behalf of Moray's power to rule on behalf of King James. King Frederick II of Denmark and Norway founds Fredrikstad in Norway. Construction of Villa Capra "La Rotonda" in Vicenza, designed by Andrea Palladio, begins. It will be one of the most influential designs in the history of architecture.[8] Rugby School, one of the oldest public schools in England, is founded. Although sparse maritime trade existed since its founding, the Ming dynasty government of China officially revokes the haijin maritime trade ban, reinstating foreign trade with all countries except Japan.[9] Jacob van Heemskerk Infanta Catherine Michelle of Spain January 1 - Fabio Colonna, Italian scientist (d. 1640) January 4 - François d'Aguilon, Belgian Jesuit mathematician (d. 1617) January 25 - Archduchess Margaret of Austria (d. 1633) January 27 - Anna Maria of Brandenburg, Duchess Consort of Pomerania (d. 1618) February 12 - Thomas Campion, English poet and composer (d. 1620) [10] February 23 - Elisabeth of Brunswick-Wolfenbüttel, Countess of Holstein-Schauenburg and Duchess Consort of Brunswick-Harburg (d. 1618) February 24 - Jindřich Matyáš Thurn, Swedish general (d. 1640) March 13 (bapt.) - Jacob van Heemskerk, Dutch admiral and explorer (d. 1618) February 24 - Jindřich Matyáš Thurn, Swedish general (d. 1640) March 13 (bapt.) - Jacob van Heemskerk, Dutch admiral and explorer (d. 1618) February 24 - Jindřich Matyáš Thurn, Swedish general (d. 1640) March 13 (bapt.) - Jacob van Heemskerk, Dutch admiral and explorer (d. 1618) February 24 - Jindřich Matyáš Thurn, Swedish general (d. 1618) February 24 - Jindřich Matyáš Thurn, Swedish general (d. 1640) March 13 (bapt.) - Jacob van Heemskerk, Dutch admiral and explorer (d. 1618) February 24 - Jindřich Matyáš Thurn, Swedish general (d. 1640) March 13 (bapt.) - Jacob van Heemskerk, Dutch admiral and explorer (d. 1618) February 24 - Jindřich Matyáš Thurn, Swedish general (d. 1640) March 13 (bapt.) - Jacob van Heemskerk, Dutch admiral and explorer (d. 1640) March 14 (bapt.) - Jacob van Heemskerk, Dutch admiral and explorer (d. 1618) February 24 - Jindřich Matyáš Thurn, Swedish general (d. 1640) March 13 (bapt.) - Jacob van Heemskerk, Dutch admiral and explorer (d. 1640) March 14 (bapt.) - Jacob van Heemskerk, Dutch admiral and explorer (d. 1640) March 14 (bapt.) - Jacob van Heemskerk, Dutch admiral and explorer (d. 1640) March 14 (bapt.) - Jacob van Heemskerk, Dutch admiral and explorer (d. 1640) March 14 (bapt.) - Jacob van Heemskerk, Dutch admiral and explorer (d. 1640) March 14 (bapt.) - Jacob van Heemskerk, Dutch admiral and explorer (d. 1640) March 14 (bapt.) - Jacob van Heemskerk, Dutch admiral adm 1614) April 10 - John Louis I, Count of Nassau-Wiesbaden-Idstein, Germany noble (d. 1596) April 26 - Nicolas Formé, French composer (d. 1603) May 9 - John George I, Prince of Anhalt-Dessau (1603-1618) (d. 1618) May 13 - Don
Giovanni de' Medici, Italian military commander and diplomat (d. 1621) May 15 - Claudio Monteverdi, Italian composer (d. 1643) June 25 - Jacob Ulfeldt, Danish politician (d. 1630) August 15 - Philip III, Margrave of Baden-Rodemachern (1588-1620) (d. 1620) August 21 - Francis de Sales, Savoyard Bishop of Geneva and saint (d. 1630) August 15 - Philip III, Margrave of Baden-Rodemachern (1588-1620) (d. 1620) August 21 - Francis de Sales, Savoyard Bishop of Geneva and saint (d. 1630) August 15 - Philip III, Margrave of Baden-Rodemachern (1588-1620) (d. 1620) August 21 - Francis de Sales, Savoyard Bishop of Geneva and saint (d. 1630) August 15 - Philip III, Margrave of Baden-Rodemachern (1588-1620) (d. 1620) August 21 - Francis de Sales, Savoyard Bishop of Geneva and saint (d. 1630) August 15 - Philip III, Margrave of Baden-Rodemachern (1588-1620) (d. 1620) August 21 - Francis de Sales, Savoyard Bishop of Geneva and saint (d. 1630) August 15 - Philip III, Margrave of Baden-Rodemachern (1588-1620) (d. 1620) August 21 - Francis de Sales, Savoyard Bishop of Geneva and saint (d. 1630) August 15 - Philip III, Margrave of Baden-Rodemachern (1588-1620) (d. 1620) August 21 - Francis de Sales, Savoyard Bishop of Geneva and saint (d. 1630) August 15 - Philip III, Margrave of Baden-Rodemachern (1588-1620) (d. 1620) August 21 - Francis de Sales, Savoyard Bishop of Geneva and saint (d. 1630) August 15 - Philip III, Margrave of Baden-Rodemachern (1588-1620) (d. 1620) August 21 - Francis de Sales, Savoyard Bishop of Geneva and saint (d. 1630) August 15 - Philip III, Margrave of Baden-Rodemachern (1588-1620) (d. 1620) August 21 - Francis de Sales, Savoyard Bishop of Geneva and saint (d. 1630) August 21 - Francis de Sales, Savoyard Bishop of Geneva and saint (d. 1630) August 21 - Francis de Sales, Savoyard Bishop of Geneva and saint (d. 1630) August 21 - Francis de Sales, Savoyard Bishop of Geneva and saint (d. 1630) August 21 - Francis de Sales, Savoyard Bishop of Geneva and saint (d. 1630) August 21 - Francis de Sales, Savoyard Bishop of Geneva and saint (d. 1 1622) September - Edward Sutton, 5th Baron Dudley, English landowner (d. 1643) September 2 - György Thurzó, Palatine of Hungary (d. 1616) September 2 - György Thurzó, Palatine of Hungary (d. 1616) September 2 - György Thurzó, Palatine of Hungary (d. 1616) September 2 - Martin Fréminet, French painter (d. 1619) October 10 - Infanta Catherine Michelle of Spain (d. 1597) November Thomas Nashe, English poet (d. 1600)[11] Minye Kyawswa II of Ava, last crown prince of the Toungoo Empire (Burma) (d. 1599) November 1 - Diego Sarmiento de Acuña, 1st Count of Gondomar, Spanish diplomat (d. 1626) November 16 - Anna of Saxony, German noblewoman (d. 1613) November 21 - Anne de Xainctonge, French religious (d. 1621) December 15 - Christoph Demantius, German composer (d. 1643) date unknown Isabel Barreto, Spanish admiral (d. 1612) Pierre Biard, French settler and Jesuit missionary (d. 1622) Adriaen Block, Dutch fur trader and navigator (d. 1624) Jacques Clément, French assassin of Henry III of France (d. 1650) Willem Schouten, Dutch navigator (d. 1625) Torii Tadamasa Japanese nobleman (d. 1628) Sanada Yukimura, Japanese samurai and soldier (d. 1615) Ban Naoyuki, Japanese samurai and soldier (d. 1615) January 17 - Sampiero Corso, Corsican mercenary leader (b. 1498) January 23 - Jiajing Emperor of China (b. 1507) January 26 -Nicholas Wotton, English diplomat (c. b. 1497) February 10 - Henry Stuart, Lord Darnley, consort of Mary, Queen of Scots (b. 1545) February 20 - Estácio de Sá, Portuguese officer, founder of Rio de Janeiro (b. 1520) March 31 - Philip I, Landgrave of Hesse (b. 1504) April 1 - Jan Krzysztof Tarnowski, Polish nobleman (b. 1537) April 2 - Ernest III, Duke of Brunswick-Grubenhagen (b. 1518) April 18 - Wilhelm von Grumbach, German adventurer (b. 1503) April 19 - Michael Stifel, German mathematician (b. 1487) May 2 - Marin Držić, Croatian writer (b. 1508)[12] June 2 - Shane O'Neill, Irish chieftain (b. 1487) May 2 - Marin Držić, Croatian writer (b. 1508)[12] June 19 - Anna of Brandenburg, Duchess of Mecklenburg-Güstrow (b. 1507) August 3 - Myeongjong of Joseon, ruler of Korea (b. 1519) November 12 - Marie of Brandenburg-Kulmbach, Princess of Brandenburg-Kulmbach and by marriage Electress Palatine (b. 1519) November 12 Anne de Montmorency, Constable of France (b. 1493) November 13 - Pedro de la Gasca, viceroy of Peru (b. 1485) November 19 - Takeda Yoshinobu, Japanese daimyō (b. 1511) Péter Erdődy, ban of Croatia (b. 1504) Shahghali, khan of Qasim (b. 1505) Lawrence Sheriff, English gentleman and grocer to Elizabeth I (b. 1510) Akagawa Motoyasu, Japanese samurai ^ L. Carington Goodrich and Fang Chaoying, Dictionary of Ming Biography, 1368-1644 (Columbia University Press, 1976) ^ Weir, Alison (2008) [2003]. Mary, Queen of Scots and the Murder of Lord Darnley. London: Random House. p. 255. ISBN 978-0-09-952707-7. Julian Goodare, 'The Ainslie Bond', Kings, Lords and Men in Scotland and Britain, 1300-1625 (Edinburgh, 2014), pp. 15, 301-319. William Simpson (2001). The Reign of Elizabeth. Heinemann. p. 64. ISBN 978-0-435-32735-4. Jeremy Black (2002). European Warfare, 1494-1660. Psychology Press. p. 100. ISBN 978-0-415-27532-3. Antonio Jose Saraiva, The Marrano Factory: The Portuguese Inquisition and Its New Christians, 1536-1765 (Brill, 2001), pp. 345-347 ^ The Records of the Parliaments of Scotland to 2007, ed. by K.M. Brown, et al. (St Andrews University, 2007) ^ Clark, Roger H.; Pause, Michael (2012). Precedents in architecture : analytic diagrams, formative ideas, and partis (4th ed.). Hoboken: Wiley. ISBN 9780470946749. ^ Bertrand, Romain (2011). L'Histoire à parts égales. Paris: Seuil. p. 66. ISBN 978-2-02-105017-2. ^ "Thomas Campion | English poet and musician". Encyclopedia Britannica. Retrieved April 20, 2021. ^ Nicholl, Charles. A Cup of News: The Life of Thomas Nashe. Routledge & Kegan Paul. 1984. Page 11 ^ Živojin Boškov (1971). Živan Milisavac (ed.). Jugoslovenski književni leksikon [Yugoslav Literary Lexicon] (in Serbo-Croatian). Novi Sad (SAP Vojvodina, SR Serbia): Matica srpska. p. 106. Retrieved from " 30ne hundred years, from 1401 to 1500 This article heeds additional citations for verification. Please help improve this article by adding citations to reliable sources. Unsourced material may be challenged and removed. Find sources: "15th century" - news · newspapers · books · scholar · JSTOR (September 2022) (Learn how and when to remove this message) Millennia 2nd millennium Century 15th century 14th century 15th century 16th century Decades 1400s 1410s 1420s 1430s 1440s 1450s 1460s 1470s 1480s 1490s Categories: Births - Deaths Establishments vte Ottoman Conquest of Constantinople and the fall of the Byzantine Empire. Various historians describe it as the end of the Middle Ages. The Surrender of Granada by Francisco Pradilla Ortiz, 1882: Muhammad XII surrenders to Ferdinand and Isabella Gergio Deluci, Christopher Columbus arrives in the Americas in 1492, 1893 painting. The 15th century which spans the Julian calendar dates from 1 January 1401 (represented by the Roman numerals MCDI) to Even the Americas in 1492, 1893 painting. 31 December 1500 (MD). In Europe, the 15th century includes parts of the Late Middle Ages, the Early Renaissance, and the early modern period. Many technological, social and cultural developments of the 15th century can in retrospect be seen as heralding the "European miracle" of the following centuries. The architectural perspective, and the modern fields which are known today as banking and accounting were founded in Italy. The Hundred Years' War ended with a decisive French victory over the English in the Battle of Castillon. Financial troubles in England following the conflicts ended with the defeat of Richard III by Henry VII at the Battle of Bosworth Field, establishing the Tudor dynasty in the later part of the century. Constantinople, known as the capital of the Byzantine Empire, fell to the emerging Muslim Ottoman Turks, marking the end of the tremendously influential Byzantine Empire and, for some historians, the end of the Middle Ages.[1] This led to the migration of Greek scholars and texts to Italy, while Johannes Gutenberg's invention of a mechanical movable type began the printing press. These two events played key roles in the development of the Renaissance.[2][3] The Roman papacy was split in two parts in Europe for decades (the so-called Western Schism), until the Council of Constance. The division of the Catholic Church and the unrest associated with the Hussite movement would become factors in the rise of the Protestant Reformation in the following century. Islamic Spain became dissolved through the Christian Reconquista, followed by the forced conversions and the Muslim rebellion,[4] ending over seven centuries of Islamic rule and returning southern Spain to Christian rulers. The spices, wines and precious metals of the Bengal, but the trade was subsequently lower, due to the rise of the Ottoman Empire, which introduced new taxes and tariffs against European traders. This had led to explorers like Christopher Columbus finding a route to reach India, which eventually reached the Americas. Explorers like Vasco da Gama, a Portuguese traveller, also found a route to reach to India from the African coast. In Asia, the Timurid Empire collapsed and the Afghan Pashtun Lodi dynasty took control of the Delhi Sultanate. Under the rule of the Yongle Emperor, who built the Forbidden City and commanded Zheng He to explore the world overseas, the Ming dynasty's territory reached its pinnacle. In Africa, the spread of Islam led to the destruction of the Christian kingdoms of Nubia, by the end of the century, leaving only Alodia (which was to collapse in 1504). The formerly vast Mali Empire testered on the brink of collapse, under pressure from the rising Songhai Empire. In the Americas, both the Aztec Empire and the Inca Empire testered
on the brink of collapse, under pressure from the rising Songhai Empire. of the Americas, changed the course of modern history. Portrait of the founder of accounting, Luca Pacioli, by Jacopo de' Barbari (Museo di Capodimonte). 1401: Dilawar Khan establishes the Malwa Sultanate in present-day central India. 1402: Ottoman and Timurid Empires fight at the Battle of Ankara resulting in the capture of Bayezid I by Timur. 1402: Sultanate of Malacca founded by Parameswara.[6] 1402: The settlement of the Canary Islands signals the beginning of the Spanish Empire. 1403-1413: Ottoman Interregnum, a civil war between the four sons of Bayezid I. 1403: The Yongle Emperor moves the capital of China from Nanjing to Beijing.[7] 1404-1406: Regreg War, Majapahit civil war of secession between Wikramawardhana against Wirabhumi. 1405: The Sultanate of Sulu is established by Sharif ul-Hashim. 1405-1433: During the Indian Ocean to Malacca, India, Ceylon, Persia, Arabia, and East Africa to spread China's influence and sovereignty. The first voyage, a massive Ming dynasty naval expedition ending in 1407, visited Java, Palembang, Malacca, Aru, Samudera and Lambri.[8] 1408: The last recorded event to occur in the Norse settlements of Greenland was a wedding in Hvalsey in the Eastern Settlement in 1408. The Northern Yuan dynasty and Turco-Mongol residual states and domains by the 15th century 1410: The Battle of Grunwald is the decisive battle of the Polish-Lithuanian-Teutonic War leading to the downfall of the Teutonic Knights. 1414: Khizr Khan, deputised by Timur to be the governor of Multan, takes over Delhi founding the Sayyid dynasty. 1415: Henry the Navigator leads the conquest of Ceuta from the Moors marking the beginning of the Portuguese Empire. 1415: Jan Hus is burned at the stake as a heretic at the Council of Constance. 1417: A large goodwill mission led by three kings of Sulu, the Eastern King Paduka Pahala, the Western king Maharaja Kolamating and Cave king Paduka Prabhu as well as 340 members of their delegation, in what is now the southern Philippines, ploughed through the Pacific Ocean to China to pay tribute to the Yongle emperor of the Ming Dynasty.[9] 1417: The East king of Sulu, Paduka Pahala, on their way home, suddenly died in Dezhou, a city in east China's Shandong province. The Yongle Emperor Zhu Di commissioned artisans to build a tomb for the king.[10] 1419-1433: The Hussite Wars in Bohemia. Joan of Arc, a French peasant girl, directly influenced the result of the Hundred Years' War. 1420: Construction of the Chinese Forbidden City is completed in Beijing. 1420: In Sub-saharan Africa the Ife Empire has collapsed. 1424: James I returns to Scotland after being held hostage under three Kings of England since 1406. 1424: Deva Raya as monarch of the Vijayanagara Empire. 1425: Catholic University of Leuven (Belgium) founded by Pope Martin V. 1427: Reign of Itzcoatl begins as the fourth tlatoani of Tenochtitlan and the first emperor of the Aztec Empire. 1429: Joan of Arc ends the Siege of Orléans and turns the tide of the Hundred Years' War. 1429: Queen Suhita succeeds her father Wikramawardhana as ruler of Majapahit.[11] 1430: Rajah Lontok and Dayang Kalangitan become co-regent rulers of the ancient kingdom of Tondo. 1431 9 January - Pretrial investigations for Joan of Arc begin in Rouen, France under English occupation. 3 March - Pope Eugene IV succeeds Pope Martin V, to become the 207th pope. 26 March - The trial of Joan of Arc begins. 30 May - Nineteen-year-old Joan of Christmemel, creating anti-Polish alliance September - Battle of Inverlochy: Donald Balloch defeats the Royalists. 30 October - Treaty of Medina del Campo, consolidating peace between Portugal and Castille. 16 December - Henry VI of England is crowned King of France. 1434: The Catholics and Utraquists defeat the Taborites at the Battle of Lipany, ending the Hussite Wars. 1438: Pachacuti founds the Inca Empire. Detail of The Emperor's Approach showing the Xuande Emperor's royal carriage. Ming dynasty of China. 1440: Eton College founded by Henry VI. 1440s: The Golden Horde breaks up into the Siberia Khanate, the Khanate of Kazan, the Astrakhan Khanate, the Crimean Khanate, and the Great Horde. 1440-1469: Under Moctezuma I, the Aztecs become the dominant power in Mesoamerica. 1440: Oba Ewuare comes to power in the West African city of Benin, and turns it into an empire. 1440: Reign of Moctezuma I begins as the fifth tlatoani of Tenochtitlan and emperor of the Aztec Empire. 1441: Jan van Eyck, Flemish painter, dies. 1441: Portuguese navigators cruise West Africa and reestablish the European slave trade with a shipment of African slaves sent directly from Africa to Portugal. 1441: A civil war between the Tutul Xiues and Cocom breaks out in the League of Mayapan. As a consequence, the league of Mayapan. As a consequence, the league begins to disintegrate. 1442: Leonardo Bruni defines Middle Ages and Modern times. 1443: Abdur Razzag visits India. 1443: King Sejong the Great publishes the hangul, the native phonetic alphabet system for the Korean language. 1444: The Albanian state is set up and lasts until 1479. 1444: Ottoman Empire under Sultan Murad II defeats the Polish and Hungarian armies under Władysław III of Poland and János Hunyadi at the Battle of Varna. 1445: The Kazan Khanate defeats the Grand Duchy of Moscow at the Battle of Suzdal. 1446: Mallikarjuna Raya succeeds his father Deva Raya II as monarch of the Vijayanagara Empire. 1447: Wijaya Parakrama Wardhana, succeeds Suhita as ruler of Majapahit.[11] 1449: Saint Srimanta Sankardeva was born. 1449: Esen Tavisi leads an Oirat Mongol invasion of China which culminate in the capture of the Zhengtong Emperor at Battle of Tumu Fortress. Angkor, the capital of the Khmer Empire, was abandoned in the 15th century. 1450s: Machu Picchu constructed. 1450: Dayang Kalangitan became the Queen regnant of the ancient kingdom of Tondo that started Tondo's political dominance over Luzon. 1451: Bahlul Khan Lodhi ascends the throne of the Delhi sultanate starting the Lodhi dynasty 1451: Rajasawardhana, born Bhre Pamotan, styled Brawijaya II succeeds Wijayaparakramawardhana as ruler of Majapahit.[11] 1453: The Fall of Constantinople marks the end of the Byzantine Empire and the death of the last Roman Empire. 1453: The Battle of Castillon is the last engagement of the Hundred Years' War and the first battle in European history where cannons were a major factor in deciding the battle. 1453: Reign of Rajasawardhana ends.[11] 1454-1466: After defeating the Teutonic Knights in the Thirteen Years' War, Poland annexes Royal Prussia. 1455-1485: Wars of the Roses - English civil war between the House of York and the House of York redeeming her status as the heroine of France. 1456: The Siege of Belgrade halts the Ottomans' advance into Europe. 1456: Girishawardhana, styled Brawijaya III, becomes ruler of Majapahit.[11] 1457: Construction of Edo Castle begins. The seventeen Kuchkabals of Yucatán after The League of Mayapan in 1461. 1461: The League of Mayapan disintegrates. The league is replaced by seventeen Kuchkabal. 1461: The city of Sarajevo is founded by the Ottomans. 1461: 2 February - Battle of Mortimer's Cross: Yorkist troops led by Edward, Duke of York defeat Lancastrians under Owen Tudor and his son Jasper Tudor, Earl of Pembroke in Wales. 17 February - Second Battle of St Albans, England: The Earl of Warwick's army is defeated by a Lancastrian force under Queen Margaret, who recovers control of her husband. 5 March - Henry VI of England is deposed by the Duke of York during war of the Roses. 29 March - Battle of Towton: Edward IV defeats Queen Margaret to make good his claim to the English throne (thought to be the bloodiest battle ever fought in England). 28 June - Edward IV, King of England (reigns until 1483). July - Byzantine general Graitzas Palaiologos honourably surrenders Salmeniko Castle, last garrison of the Despotate of the Morea, to invading forces of the Ottoman Empire after a year-long siege. Political map of Europe in 1470 22 July - Louis XI of France succeeds Charles VII Tombouctou (or Timbuktu) and capturing the city. He develops both his own capital, Gao, and the main centres of Mali, Timbuktu and Djenné, into major cities. Ali Ber controls trade along the Niger River with a navy of war vessels. 1462: Mehmed the Conqueror is driven back by Wallachian prince Vlad III Dracula at The Night Attack. 1464: Edward IV of England secretly marries Elizabeth Woodville. 1465: The 1465 Moroccan revolt ends in the murder of the last Marinid Sultan of Morocco Abd al-Haqq II. 1466: Singhawikramawardhana as ruler of Majapahit.[11] 1467: Uzun Hasan defeats the Black Sheep Turkoman leader Jahān Shāh. 1467-1615: The Sengoku period is one of civil war in Japan. 1469: The marriage of Ferdinand II of Aragon and Isabella I of Castile leads to the unification of Spain. The renaissance king Matthias Corvinus of Hungary conquers some parts of Bohemia. 1469: Birth of Guru Nanak Dev. Beside followers of Sikhism, Guru Nanak is revered by Hindus and Muslim Sufis across the Indian subcontinent. 1469: Reign of Axayacatl begins in the Aztec Triple Alliance. 1470: The Moldavian forces under Stephen the Great defeat the Tatars of the Golden Horde at the Battle of Lipnic. 1471: The kingdom of Champa suffers a massive defeat by the Vietnamese king Lê Thánh Tông. 1472: Abu Abd Allah al-Sheikh Muhammad ibn Yahya becomes the first Wattasid Sultan of Morocco. 1474-1477: Burgundy Wars of France, Switzerland, Lorraine and Sigismund II of Habsburg against the Charles the Bold, Duke of Burgundy. 1478: Muscovy conquers Novgorod. 1478: Reign of Singhawikramawardhana ends.[11] 1478: The Great Mosque of Demak is the oldest mosque in Java, built by the Wali Songo during the reign of Sultan Raden Patah. 1479: Battle of Breadfield, Matthias Corvinus of Hungary defeated the Turks. 1479: JagatGuru Vallabhacharya Ji Mahaprabhu was born[12] The
Siege of Rhodes (1480). Ships of the Hospitaliers in the forefront, and Turkish camp in the background. 1481: Spanish Inquisition begins in practice with the first auto-da-fé. 1481: Reign of Tizoc begins as the seventh tlatoani of Tenochtitlan and the emperor of the Aztec Triple Alliance. 1482: Portuguese navigator Diogo Cão becomes the first European to enter the Congo. 1483: The Jews are expelled from Andalusia. 1483: Pluto moves inside Neptune's orbit until July 23, 1503, according to modern orbital calculations. 1484: William Caxton, the first printer of books in English prints his translation of Aesop's Fables in London. 1485: Henry VII defeats Richard III at the Battle of Bosworth and becomes King of England. 1485: Ivan III of Russia conquered Tver. 1485: Saluva Narasimha Deva Raya drives out Praudha Raya ending the Sangama Dynasty. 1486: Sher Shah Suri, is born in Sasaram, Bihar. 1486: Reign of Ahuitzotl begins as the eighth tlatoani of Tenochtitlan and emperor ascends the throne, bringing Confucian ideology under his administration. 1488: Portuguese Navigator Bartolomeu Dias sails around the Cape of Good Hope. View of Florence, birthplace of the Renaissance, in a 1493 woodcut from Hartmann Schedel's Nuremberg Chronicle 1492: The death of Sunni Ali Ber left a leadership void in the Songhai Empire, and his son was soon dethroned by Mamadou Toure who ascended the throne in 1493 under the name Askia (meaning "general") Muhammad. Askia Muhammad made Songhai the largest empire in the history of West Africa. The empire went into decline, however, after 1528, when the now-blind Askia Musa. 1492: Boabdil's surrender of Granada marks the end of the Spanish Reconquista and Al-Andalus. 1492: Ferdinand and Isabella sign the Alhambra Decree, expelling all Jews from Spain unless they convert to Catholicism; 40,000-200,000 leave. 1492: Christopher Columbus landed in the Americas from Spain. 1493: Christopher Columbus landed in the Americas from Spain and Portugal sign the Treaty of Tordesillas and agree to divide the World outside of Europe between themselves. 1494-1559: The Italian Wars lead to the downfall of the Italian city-states. 1495: Manuel I succeeds John II as the king of Portugal (reigns until 1521). 1497-1499: Vasco da Gama's first voyage from Europe to India and back. 1499: Ottoman fleet defeats Venetians at the Battle of Zonchio. 1499: University "Alcalá de Henares" in Madrid, Spain is built. 1499: Michelangelo's Pietà in St. Peter's Basilica is made in Rome 1500: Islam becomes the dominant religion across the Indonesian archipelago.[13] 1500: in an effort to increase his power. Bolkiah founded the city of Selurong-later named Maynila, on the other side of the Pasig River shortly after taking over Tondo from its monarch, Lakan Gambang.[14] 1500: Around late 15th century Bujangga Manik, a Sundanese Hindu hermit journeys throughout Java and Bali.[15] 1500: Charles of Ghent (future Lord of the Netherlands, King of Spain, Archduke of Austria, and Holy Roman Emperor) was born. 1500: Guru Nanak begins the spreading of Sikhism, the fifth-largest religion in the world. 1500: Spanish navigator Vicente Yáñez Pinzón encounters Brazil for Portugal. 1500: The Ottoman fleet of Kemal Reis defeats the Venetians at the Second Battle of Lepanto. The Yongle Emperor (1360-1424) raised the Ming Empire to its highest power. Launched campaigns against the Mongols and reestablished Chinese rule in Vietnam Ulugh Beg (1394-1449), Timurid sultan who oversaw the cultural peak of the Timurid Renaissance Johannes Gutenberg (1400-1468), German inventor who introduced printing to Europe with his mechanical movable-type printing press Skanderbeg (1405-1468), who led the Albanian resistance against the Ottoman Empire Ivan III of Russia (1440-1505), Grand Prince of Moscow who ended the dominance of the Tatars in the lands of the Rus King Henry VII (1457-1509), the founder of the royal house of Tudor See also: Science and inventions of Leonardo da VinciSee also: Timeline of historic inventions § 15th century Renaissance affects philosophy, science and art. Rise of Modern English language from Middle English. Introduction of the noon bell in the Catholic world. Public banks. Yongle Encyclopedia—over 22,000 volumes. Hangul alphabet in Korea. Scotch whisky. Psychiatric hospitals[clarification needed]. Development of the woodcut for printing between 1400-1450. Movable type first used by King Taejong of Joseon—1403. (Movable type first used by King Taejong of Joseon—1403.) Sheng between 1041 and 1048.) Although pioneered earlier in Korea and by the Chinese official Wang Zhen (with tin), bronze metal movable type printing is created in China by Hua Sui in 1490. Johannes Gutenberg advances the printing ress in Europe (c. 1455) Linear perspective drawing perfected by Filippo Brunelleschi 1410-1415 Invention of the harpsichord c. 1450 Arrival of Christopher Columbus to the Americas in 1492. ^ Crowley, Roger (2006). "The Conquestof Constantinople and the end of empire". Contemporary Review. Archived from the original on 22 August 2009. It is the end of the Middle Ages) ^ Encyclopædia Britannica, Renaissance, 2008, O.Ed. ^ McLuhan 1962; Eisenstein 1980; Febvre & Martin 1997; Man 2002 ^ Harvey 2005, p. 14. ^ Nanda, J. N (2005). Bengal: the unique state. 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View (previous 50] next 50) (20 | 50 | 100 | 250 | 500)Caribbean Sea (links | edit) List of decades, centuries, and millennia (links | edit) Levant (links | edit) Sarajevo (links | edit) Snare drum (links | edit) Snare drum (links | edit) Shooting sports (links | edit) Sikhs (links | edit) Treaty of Verdun (links | edit) 20th century (links | edit) 16th century (links | edit) 17th century (links | edit) 17th century (links | edit) 1490s (links | edit) 1490s (links | edit) 1490s (links | edit) 1490s (links | edit) 1572 (links | edit) 1597 (links | edit) 7th century (links | edit) 1572 10th century (links | edit) 9th century (links | edit) 4th century (links | edit) 5th century (links | edit) 1573 (links | edit) 1570s (links | edit) 1570s (links | edit) 1574 (links | edit) 1570s (links | edit) 1574 (links | edit) 1570s (l edit) 2nd century BC (links | edit) 3rd century BC (links | edit) 5th century BC (links | edit) 6th century BC (links | edit) 1430s (li importancia en la interacción entre la luz y la materia. Explora sus aplicaciones tecnológicas en fotografía digital y energía solar. El efecto fotoeléctrico es un fenómeno físico que ocurre cuando la luz incide sobre un material y provoca la liberación de electrones. Este efecto fue descubierto por el físico Albert Einstein en 1905 y es de gran importancia en la comprensión de la naturaleza de la luz y la interacción entre la luz y la materia. El mecanismo del efecto fotoeléctrico se puede entender mediante la teoría, la luz se compone de partículas energéticas llamadas fotones. Cada fotón tiene una cantidad de energía específica que depende de la frecuencia de la luz. Cuando un fotón incide sobre un material, puede interactuar con los electrones de ese material. En el efecto fotoeléctrico, si la energía del fotón es suficiente, puede transferir su energía del fotón debe ser mayor que la energía de ionización del átomo para que se produzca la liberación del electrón. Es importante destacar que el efecto fotoeléctrico depende tanto de la energía de ionización específica, que es la energía del inización del electrón. Además, la frecuencia de la luz incidente también juega un papel crucial. Solo los fotones con una frecuencia igual o mayor que la frecuencia umbral pueden liberar electrones. La cantidad de la luz incidente. A mayor intensidad, mayor será el número de electrones liberados. Sin embargo, la energía cinética de los electrones no depende de la intensidad de la luz, sino de la energía de cada fotón. Aplicaciones del efecto fotoeléctrico El efecto fotoeléctrico El efecto fotoeléctrico se utiliza el efecto fotoeléctrico para convertir la luz en señales eléctricas. Los fotones de luz inciden sobre un sensor fotoeléctrico que genera una corriente eléctrica proporcional a la intensidad de la luz. Esta corriente se convierte en una señal digital que representa la imagen capturada. Otra aplicación importante es la energía solar. Los paneles solares utilizan el efecto fotoeléctrico para convertir la luz solar en energía eléctrica. Los fotones de la luz solar inciden sobre células fotoeléctricos. En conclusión, el efecto fotoeléctrico es un fenómeno fundamental en la interacción entre la luz y la materia. Su comprensión ha llevado a numerosas aplicaciones tecnológicas en campos como la fotografía digital y la energ En conclusión, el efecto fotoeléctrico es un fenómeno fundamental en la interacción entre la luz y la materia. Su comprensión ha llevado a numerosas aplicaciones tecnológicas en campos como la fotografía digital y la energía solar. Además, el efecto fotoeléctrico ha sido una pieza clave en el desarrollo de la teoría cuántica, ya que proporciona evidencia de la naturaleza de partícula de la luz y la existencia de fotones. La comprensión del mecanismo del efecto fotoeléctrico ha abierto nuevas puertas en el campo de la óptica y la física de partículas. Ha permitido el desarrollo de dispositivos y tecnologías que aprovechan la interacción entre la luz y la materia, abriendo camino a avances en la comunicación, la generación de energía y la investigación científica. En resumen, el efecto fotoeléctrico es un fenómeno fascinante que ha contribuido significativamente al avance de la ciencia y la tecnología. Su estudio continuo y la búsqueda de nuevas aplicaciones siguen siendo áreas de investigación activa en la actualidad. Gracias a los esfuerzos de científicos y estudiosos, cada vez comprendemos mejor este fenómeno y podemos utilizarlo de manera más eficiente en diversas aplicaciones prácticas.