Science News

GRAVITY SIMPLIFIED

by Victor W. Hatch © 2016

A good scientific theory would conform to Newton's four rules of philosophy. It would, in the simplest possible manner, provide explanations for the various manifestations of the physical universe. In doing so, it would connect and unify chemistry and physics, gravitation and electricity. It would apply equally at the macro level, as in the cosmos, and at the micro level, as in the atom. Gravitational theory must apply equally to the behaviour of galaxies, solar systems, cars, balls, molecules and atoms.

Gravitation and Space

Einstein's theory of general relativity proposes that spacetime is curved by matter, and that this curvature of spacetime is gravitation which then dictates the movement of matter. This is typically illustrated with a ball—the gravitational mass—on a rubber sheet. This model is used to show why starlight is deflected as it passes by the Sun.

This is a distorted picture, as the gravitational force around a mass such as the Sun, Moon or Earth, in the absence of other masses, varies spherically outwards from the centre of the mass.

Einstein's theory is that "spacetime" is curved by the presence of matter, and this curvature of spacetime then affects the path of matter and radiation through spacetime. This spacetime varies in density and in doing so causes the curvature of light and radiation as the light and radiation pass a mass. From this, it follows that this spacetime must vary in correspondence with the gravitational field. Thus, for gravity to be due to the curvature of spacetime, the term "space" as used in Einstein's theory cannot be the same as space in our everyday world.

Since gravity is due to the curvature of spacetime, then "space" and "time" are effectively redefined by Einstein's theory. The path of light as it passes the Sun is deflected by the gradient of Einstein's "space". Therefore, this "spacetime" is the medium that carries light and radiation, and "space" and "time" are redefined by the speed of light, *c*, within this spacetime. Lorentz termed this "space" *ether* (or *aether*). To avoid confusion, the term "E-space/ether" is used here: Einsteinian "space"/Lorentzian ether.

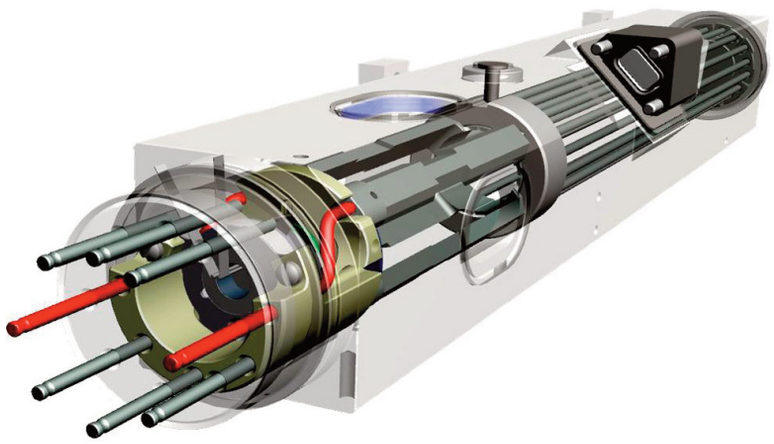
Regardless of the name, this E-space/ether has some very definite properties. For example, in transmitting radio waves, a transmitter antenna produces electromagnetic fields in E-space/ether such that a certain impedance is experienced at the antenna. A half-wave antenna has the same impedance at any frequency. Electromagnetic, electric and magnetic fields in E-space/ether couple into antennas. Electric fields in E-space/ether couple into any conducting material such as a metal pole or a metal sheet.

Using the speed of light as a constant, *c*, then in E-space/ether for radiation to be curved by gravitation, the density of E-space/ether must vary in the same ratio as the change in the gravitational force intensity.

Both E-space/ether density and gravitational force intensity vary by the inverse square of the distance from the centre of mass, $1/d^2$, the distance calculated by our mundane, everyday measure. Doubling the distance reduces gravitation by a quarter and similarly reduces the E-space/ether density by a quarter.

This results in the wave front farthest out, at higher altitude, travelling faster than the closer wave front. This also results in the curvature of light or radiation as it passes a mass such as the Sun or the Earth. The amount of curvature will vary such that long-wavelength radiation will curve more than short

In transmitting radio waves, a transmitter antenna produces electromagnetic fields in E-space/ether.



The Deep Space Atomic Clock (DSAC) is a miniaturised, ultra-precise mercury-ion atomic clock for precise radio navigation in deep space. The project is managed by NASA's Jet Propulsion Laboratory. A test flight in low Earth orbit is scheduled for March 2017. (Image: NASA)

wavelengths. Ultraviolet light will be curved less than infrared light.

Pendulum clocks run faster in reduced gravity at higher altitude. The earliest gravity meters used a variation of the pendulum clock. Atomic clocks also run faster at altitude. The velocity of the clock in orbit has a slowing effect on the clock rate. This is due to the increase in the mass of the clock caused by the velocity: $m = 2 \cdot E/v^2$; from $E = m \cdot v^2/2$, where E is energy, m is mass and v is velocity.

Gravity in Matter

In solid objects, the molecules are held together, frozen in place, by the attractive forces between the atoms and molecules. More than 99 per cent of the mass of every object consists of the nuclei of the atoms. There is no other source of mass. Taking the gravitational force down into the molecule and atom, we see that E-space/ether must be very dense around the nuclei of atoms and that gravity is the force that binds atoms into molecules. As an example, the van der Waals force that holds gas molecules together is gravitational force. Liquids are made up of molecules that are held together by the force of gravity. In solid objects, the force of gravity holds the molecules of the object solidly together.

The standard model of the atom states that the atom is electrically neutral. Yet for the nucleus of the atom to hold the outer electrons in orbit, the positive electric field of the nucleus must extend beyond the outer electron orbit. Thus, the atom must have an overall positive charge.

Evidence for this is in the change of electronegativity[1] of atoms. Electronegativity is the measure of atoms to gain electrons when combining with other atoms. An atom with high electronegativity could be said to be hungry for electrons, indicating an overall positive charge. The noble, inert gases could be said to have no electronegativity as they do not combine with other elements. (The difference in electronegativity can account for the triboelectric effect.) There is an abrupt change in electronegativity and size between the elements He and Li (helium and lithium), between Ne and Na (neon and sodium), between Ar and K (argon and potassium), between Kr and Rb (krypton and rubidium) and between Xe and Cs (xenon and caesium).

He, Ne, Ar, Kr and Xe are inert, noble gases with zero electronegativity as they do not share electrons. Li, Na, K, Rb and Cs are solids, indicating a relatively high electronegativity, or positive charge, of their nuclei in relation to their position in the periodic table. This illustrates the relative change in the positive charge of atoms. The atom is not neutral but has an overall positive charge.

The standard model is that the attraction between the positive nucleus and the valence electrons is the force that binds molecules. This requires that the nuclei of the atoms be positive enough to attract the valence electrons. At the same time, as per the standard concept, there is a repulsive force between positively charged objects. So the attraction between the nuclei and the valence electrons must exceed the repulsion between the nuclei. This is contradicted by the decrease in the size of molecules as they are positively ionised. The attraction of positive to positive of the force of gravity explains this simply.

The mass of the atom consists only of positively charged mass. The conclusion from this is that there is no neutron in the nuclei of atoms. Neutrons are apparently only generated when atoms are shattered, and thus would appear to be particles of radiation created by the release of energy. The force of gravity therefore corresponds to a positive electric field.

This leads to the conclusion that the electric field corresponds to the E-space/ether density and the gravitational force. The force of gravity corresponds to a change in E-space/ether density and the residual positive electric field of atoms, molecules, the Earth, Sun, Moon, etc.

With the existing standard model, the attractive force between the nuclei of atoms and the valence electrons is too weak to account for the strong binding forces between molecules in metals and in metallic

alloys and compounds. Helium and iron both have two valence electrons, so the binding force in helium molecules and iron molecules should be the same! The stronger binding force in iron is accounted for by the attraction between the more positively charged nuclei of the iron molecules, due to their greater mass.

Note that the lack of neutrons in atomic nuclei also accounts for the lack of neutron radiation in cold fusion experiments.

Setting the force of gravity equal to the electric force between two masses of equal mass and charge results in:

$F_{gr} = F_{e1}$ and $G(m_1 \cdot m_2)/d^2 = k_e(q_1 \cdot q_2)/d^2$

Thus: $q^2/kg^2 = G/k_e = 6.67 \cdot 10^{-11}/8.99 \cdot 10^9 = 7.42 \cdot 10^{-21}$

And: $q/kg = \sqrt{7.42 \cdot 10^{-21}} = 8.61 \cdot 10^{-11}$ coulombs per kilogram (kg) of positive charge.

F_{gr} is the force of gravity;
F_{e1} is the electric force;
G is the gravitational constant, $6.67 \cdot 10^{-11}$;
m is mass in kilograms;
d is distance;
k_e is the electric force constant, $8.99 \cdot 10^9$;
q is the charge in coulombs.

The $q/kg = 8.61 \cdot 10^{-11}$ coulombs per kilogram is a positive charge; that is, each kilogram of mass has a positive electric charge of $8.61 \cdot 10^{-11}$ coulombs. This produces the condensation/curvature of E-space/ether and the gravitational attraction between objects, planets, suns, etc.

Supporting Evidence

Heat and vibration produce positively charged molecules; this is due to atoms approaching each other and knocking the outer electrons out of orbit to radiate as infrared radiation. This is the intense heat radiation from a fire and from heated metals. A positive space charge is created over the ocean by wind.[2] This causes the force of the winds in hurricanes.

An experiment using a clothes dryer and wet clothes illustrates the attraction of positive to positive. Measurement of the electric charge of clothes just out of the dryer, with no antistatic measures used, shows a positive charge on the clothes corresponding to static cling and a static positive charge within the cavity of the clothes dryer. (This was measured with an electrostatic voltmeter, reverse polarity blocked by low-capacitance, low-leakage diodes.) This dramatically shows the attraction of positively charged clothes to positively charged clothes.

This same ionisation due to heat occurs with the cathodes of electron guns when electrons are emitted. This is also the source of radiation from flames: the heated gases are positively ionised by the heat, the vibration of molecule against molecule disrupting the electric field holding the outer electrons in orbit and causing them to radiate as infrared radiation.

Air from a hairdryer was positively ionised, as measured by a Keithley Model 616 Electrometer Amplifier. In an attempt to measure ionisation of gases from a car exhaust, the maximum voltage input rating of the electrometer amplifier was exceeded and the amplifier failed.

Other Supporting Evidence

The base of clouds during a tornado is very highly positively charged, indicating a reversal of gravity, producing a strong lifting force.[3]

Positive ionisation of the surface of the sea by solar heat initiates the strong winds of a hurricane, which are further fuelled by more positive ionisation of the water surface by the winds. There will be some point on the surface of the ocean that's slightly more positive than other areas, attracting air towards it. This produces a wind towards this positive point. The wind then produces more positively ionised water vapour. Thus, the hurricane is fuelled. Similarly, the winds of tornadoes fuel the tornadoes.

Heating of a fuel such as hydrogen positively ionises the fuel, attracting oxygen and initiating combustion—the same for all fuels.

Steel is burned for cutting by heating to the positive ionisation temperature and feeding oxygen from the torch. Welding is done by heating metals to the positive

A positive space charge is created over the ocean by wind, and is responsible for the powerful wind force in hurricanes.

The electric field at the base of a tornado cannot be measured by a vane-type electric field meter.

ionisation temperature, producing attraction between the molecules of the metals. Two pieces of steel at high temperature weld together when in good contact.

Melting of pieces of metal positively ionises the metal, producing attraction and fusion of the metals. Heat-treating and hardening of steel is achieved by heating the steel to produce positive ionisation, attracting the molecules closer together and then freezing them in that condition by rapid quenching (cooling).

As an atom becomes larger, the strength of the positive electric charge of the nucleus becomes greater and thus the positive electric field to hold the outer electrons is greater. This results in a stronger residual positive electric field as atoms become larger. There is then greater attraction between the large atoms—greater gravitational attraction. This results in the merging and radioactive decay of large atoms and the emission of neutrons, which have an extremely short wavelength of radiation. (From this it is seen that by positively charging radioactive waste, the decay time, or half-life, could be reduced.)

Due to the extremely high temperature of the chromosphere[4] of the Sun, the chromosphere is at an extremely high positive voltage. This results in "dark matter", molecular hydrogen[5], being pulled into the chromosphere. Fusion of this dark matter, hydrogen, into helium releases tremendous energy, heating the chromosphere. This is the power of the radiant heat of the Sun. Thus, the chromosphere is effectively an anode in relation to the body of the Sun as a cathode; this accelerates particles emitted from the surface of the Sun at high speed out into space.

The fusion of hydrogen into helium could thus be achieved by sealing the hydrogen in a closed container and positively charging the container and the hydrogen to strip the electrons from the hydrogen atoms, creating attraction between the positively ionised hydrogen atoms, the electrons no longer shielding the attraction between the nuclei of the hydrogen atoms. The rate of reaction could be controlled by regulating the high positive voltage.

This confirms that gravity corresponds to a positive electric field. But this must be reconciled with the first law of electrostatics, which states that like charges repel and unlike charges attract. Experimental evidence indicates that any objects or particles that have a difference in electric charge potential are attracted together. Thus, charges tend to move to equalise the charge, much as air tends to move to equalise pressure. Phenomena at the atomic level show that positive electric charge is shielded by electrons. The conventional first law of electrostatics applies until atoms or molecules are ionised, at which point the attraction of positive to positive predominates. The electric force due to gravity is too small to register on an electroscope.

Some Conclusions

This theory fits data and manifestations of physics, chemistry, metallurgy, cosmology and meteorology. It accounts for phenomena that otherwise lack a good theoretical background, such as the van der Waals force.

This theory reconciles the force of gravity at the atomic and molecular levels with the force of gravity at the levels of cars, trucks, aeroplanes, planets, moons, suns and galaxies.

The vane-type electric field meter does not measure electric field; it only measures ion flow. Thus, it fails to measure the electric field of the Earth. It cannot measure the electric field at the base of a tornado because the electric field induced in the grounding lead cancels out any possible reading. A rotary electric field meter should be effective for this use and for measuring the Earth's electric field.[6]

Solid masses are composed of molecules locked together by electric forces. These hold together even when the external E-space/ether density is changed. They hold together until the electric field becomes strong enough to cause ionisation of the matter. Positive ionisation can be caused by heat, vibration or radiation.

Objects are not really solid. There is much space and E-space/ether

within matter, thus the change of E-space/ether density produces gravitational forces on solid matter. All matter consists of atoms which have wave characteristics, thus the change in E-space/ether density bends these waves to produce the gravitational force.

The E-space/ether density within matter is greater than in empty space. Matter is thus concentrated E-space/ether.

Since E-space/ether density corresponds to the electric field, then in some materials the E-space/ether density can be changed by applying an electric field. This effect is used to modulate light beams and switch light beams in optical fibres. Light can then also be focused by electric fields.

Tornadoes, thunderstorms and hurricanes are fuelled by the positive ionisation of water molecules by vibration and heat. The winds produce more positive ionisation of water, further fuelling the tornadoes, thunderstorms and hurricanes. It is highly probable that dust storms are due to the positive ionisation of dust particles by vibration due to heat and wind, similar to the phenomenon that produces hurricanes.

Radioactivity is the attraction of positive molecule to positive molecule approaching so close together as to cause disintegration of the molecules.

More detail is provided in my e-book *A Unified Theory of Matter, Gravity and Electricity*, including data about the electrical phenomena of tornadoes, thunderstorms and hurricanes as well as magnetic and electrical phenomena in transformers and generators. ∞

About the Author:

Victor W. Hatch, who lives in Vancouver, Washington, USA, is an inventor, engineer, musician and researcher. In 1983 he received his professional engineer (PE) licence in Oregon, and for over 30 years he has been a self-employed engineer and consultant, working primarily in analogue and power electronics design. He is a member of the Institute of Electrical and Electronics Engineers, and he served for four years in the US Air Force during the Korean War as a radar technician.

Victor Hatch is the author of *A Unified Theory of Matter, Gravity and Electricity* (2016) and *Research Report: Electricity and Gravity, Tornadoes and Hurricanes, Other Phenomena* (2015), available only as e-books. He can be contacted by email at VicHatch@msn.com. For more information, visit his website http://vichatch.com.

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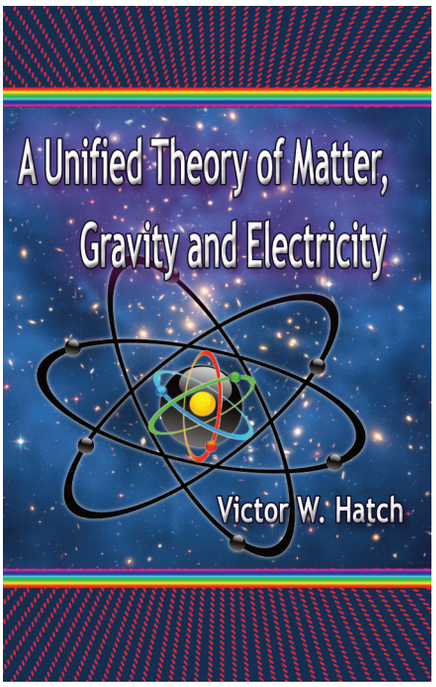

Endnotes

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