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Research Article

The Theory of Elements

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Abstract

The spin of a physical object is a vector which is held by the self-rotation axis of the object. Spin measures the intensity of the self-rotation of the object around its axis. The sudden and forceful, but direct contact of two bodies is known as collision. The collision is supposed to be perfectly elastic. Newton stated the law of universal attraction. The formula of Biot & Savart is unavoidable if we are interested by electromagnetism; this formula led to the famous equations of Maxwell. Curiously, this formula includes a vector product which may seem quite unusual. An electric current, which flows in an electric wire, creates, by induction, another current of small particles, all around the wire. The colors are intensities of reflections, due to the self-rotation of atoms of the colored objects. The stars novas are due to sudden appearance of storms of space winds, which strike the stars, and which make them self-rotate faster and then it became brighter.

Conventions

In all this work,

We set $v=\|\vec{v}\|$, where $\vec{v}$ is a vector and v its module;

Given a physical object, of mass m and velocity $\vec{v}$, the Momentum of the object is the vector, $\vec{p}=m\vec{v}$, and, the kinetic energy of the object is the number, $E=\frac{1}{2}mv^2$;

It will be shown, in the Appendix, that the momentum, $\vec{p}$, and the kinetic energy, E, are always conserved just before and just after a collision, whatever could be the referential, $\mathcal{R}$, they are expressed in;

It will be shown in the Appendix, that when a self rotating nucleus, with its orbiting atmosphere, is submitted to a higher/lower current of particles, then its self rotation and the orbital velocity, of the atmosphere, are increased/decreased;

The spin, $\vec{s}$, of a physical object, is a vector which is held by the self rotation axis of the object, is directed from south to north, counter clockwise, and which measures the intensity of the self rotation of the object around its axis [1-3].

The mass of a physical object can never be zero.

Collisions

In an orthonormal and immobile referential $\mathcal{R}=(O,\vec{i},\vec{j},\vec{k})$, we consider the collision between a solid ball, A, of mass m and another solid ball, B, of mass l; We suppose neither A nor B are disintegrated after the collision; Just before the collision, the velocity of A is $\vec{x}$ and that of B is $\vec{y}$; After the collision, the velocity of A is $\vec{u}$, and that of B is $\vec{v}$; The collision is supposed to be perfectly elastic [4].

In $\mathcal{R}$, the conservation of the momentum is written as, $m\vec{x}+l\vec{y}=m\vec{u}+l\vec{v}$, and the conservation of the kinetic energy is written as, $\frac{1}{2}mx^2+\frac{1}{2}ly^2=\frac{1}{2}mu^2+\frac{1}{2}lv^2$; Then, if we set $h=\frac{m}{l}$, we get, $h\vec{x}+\vec{y}=h\vec{u}+\vec{v}$, and, $hx^2+y^2=hu^2+v^2$; Since the problem is symmetrical between A and B, we set $m\geq l$, that is, $h\geq 1$;

The previous expressions are quite complicated, and so, to get easier interpretations and calculations, we consider the orthonormal referential $\mathcal{L}=(\Omega,\vec{i},\vec{j},\vec{k})$, which moves at the weighted average velocity, $\vec{\mu}=\frac{m\vec{x}+l\vec{y}}{m+l}$; If $\vec{a}$ is the velocity of A in $\mathcal{L}$, just before the collision, and $\vec{b}$ that of B and, $\vec{r}$ is the velocity of A just after the collision and $\vec{s}$ that of B, then, $\vec{\mu}=\frac{h\vec{x}+\vec{y}}{h+1}$, and, $\vec{a}=\vec{x}-\vec{\imath}=\frac{\vec{x}-\vec{y}}{h+1}$, and $\vec{b}=\vec{y}-\vec{\imath}=-h\frac{\vec{x}-\vec{y}}{h+1}$; Also, $\vec{r}=\vec{u}-\vec{\imath}$, and, $\vec{s}=\vec{v}-\vec{\imath}$;

$\vec{a}$ and $\vec{b}$ cannot be zero, otherwise $\vec{x}=\vec{y}$, and, A and B will not collide; $\vec{a}$ and $\vec{b}$ are of opposite directions, then A and B move toward each other, otherwise there will not be collision, and then, the collision is frontal in $\mathcal{L}$; So, it all comes down to studying a frontal collision; The conservation of the momentum and the kinetic energy, in $\mathcal{L}$, is written as,

$$h\vec{a}+\vec{b}=h\frac{\vec{x}-\vec{y}}{h+1}-h\frac{\vec{x}-\vec{y}}{h+1}=\vec{o}=h\vec{r}+\vec{s}, \quad \text{and,} \quad ha^2+b^2=hr^2+s^2;$$

Then, and since a>0, b>0, r>0, s>0,

$r = a$, and, $s = b$; The modules of incident velocities are equal to the reflected velocities; This means there is no loss of velocity (Figures 1-5).

Two situations hold in $\mathcal{L}$:

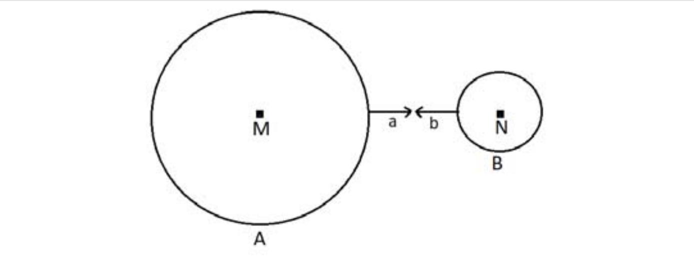

Figure 1: The center namely M and N, of A and B, are located on a same axis directed by $\vec{x}$ and $\vec{y}$.

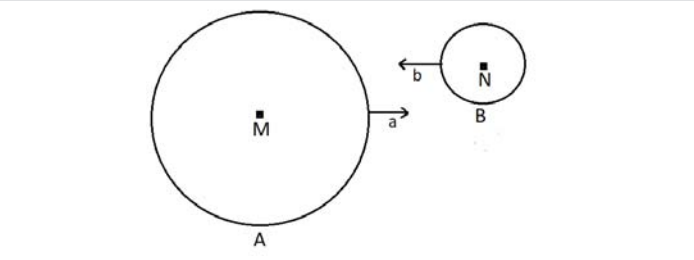

Figure 2: The collision happens at a tangent point, Z that is common to the spheres A and B.

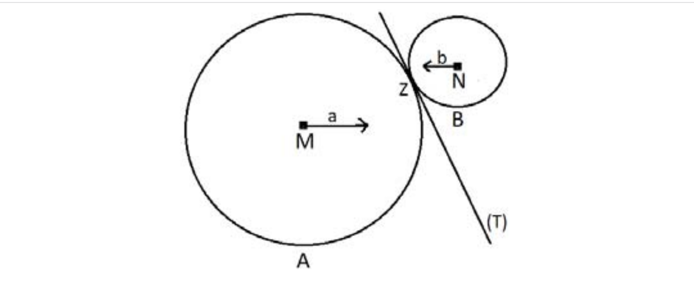

Figure 3: The rotations and displacements, of the two balls, hold, with the relations, *r = a* and *s = b*.

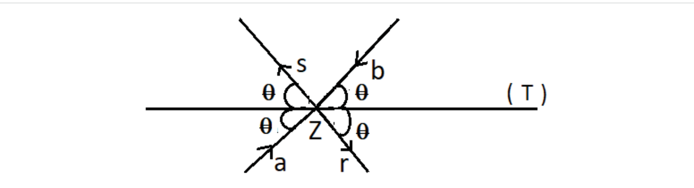

Figure 4: Collision: The two balls meet at the tangent point, Z to the spheres.

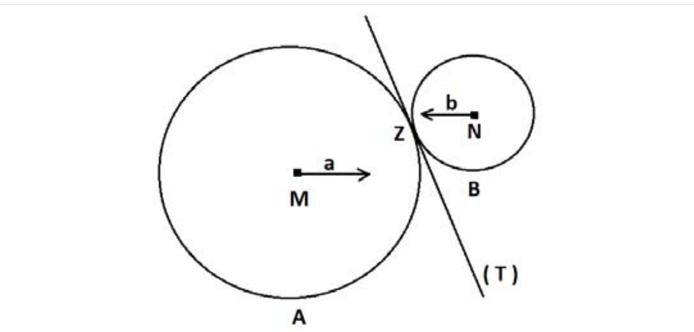

Figure 5: The rotations and displacements, at Z, the tangent unit vector is $\vec{t}$

1 – Perfect frontal collision

The situation, In $\mathcal{L}$, is shown by the scheme which follows;

Here, the centers, *M* and *N*, of *A* and *B*, are located on a same axis directed by $\vec{x}$ and $\vec{y}$; $\vec{a},\vec{b},\vec{r},\vec{s}$, are all parallel to each other; Then, $\vec{r} = \pm\vec{a}$, and $\vec{s} = \pm\vec{b}$;

Case $\vec{r} = \vec{a}$, and, $\vec{s} = -\vec{b}$; $h\vec{a} + \vec{b} = h\vec{r} - \vec{s} = h\vec{r} + h\vec{r} = 2h\vec{r} = \vec{o}, \vec{r} = \vec{o}$; Contradiction;

Case $\vec{r} = -\vec{a}$, ,and $\vec{s} = \vec{b}$; $h\vec{a} + \vec{b} = -h\vec{r} + \vec{s} = -h\vec{r} - h\vec{r} = -2h\vec{r} = \vec{o}, \vec{r} = \vec{o}$; Contradiction;

Case $\vec{r} = \vec{a}$, and, $\vec{s} = \vec{b}$; *A* and *B* will jump on each other; Impossible;

So, remains only the case $\vec{r} = -\vec{a}$, and $\vec{s} = -\vec{b}$; The two balls will be reflected backward in $\mathcal{L}$;

In $\mathcal{R}, \vec{u} = \vec{r} + \vec{\imath} = -\vec{a} + \vec{\imath}$, and $\vec{v} = \vec{s} + \vec{\imath} = -\vec{b} + \vec{\imath}$;

Remarkable situations hold when $\vec{y} = \vec{o}$ *or* $\vec{x} = \vec{o}$;

Suppose *B* is immobile In $\mathcal{R}$ before the collision, that is, $\vec{y} = \vec{o}$, then, $\vec{\imath} = \frac{h}{h+1}\vec{x}, \vec{a} = \frac{1}{h+1}\vec{x}, \vec{b} = -\frac{h}{h+1}\vec{x},$; Then, in $\mathcal{R}$, $\vec{u} = \vec{r} + \vec{\imath} = \frac{h-1}{h+1}\vec{x}, \vec{v} = \vec{s} + \vec{\imath} = \frac{2h}{h+1}\vec{x}$; If *m=l*, that is, *h=1*, or, the two balls are identical, we find, $\vec{u} = \vec{o}$, and, $\vec{v} = \vec{x}$; Then, *B* is given the velocity $\vec{x}$ of *A*, while *A* becomes immobile;

Suppose, now, *A* is immobile In $\mathcal{R}$ before the collision, that is, $\vec{x} = \vec{o}$, then, $\vec{\imath} = \frac{1}{h+1}\vec{y}$, $\vec{a} = -\frac{1}{h+1}\vec{y}, \vec{b} = \frac{h}{h+1}\vec{y}$; Then, In $\mathcal{R}$, $\vec{u} = \vec{r} + \vec{\imath} = \frac{2}{h+1} + \vec{y}$, and, $\vec{v} = \vec{s} + \vec{\imath} = 2\vec{\imath} - \vec{y} = \frac{1-h}{h+1}\vec{y}$; If *h*=1, we find, $\vec{u} = \vec{y}$, and, $\vec{v} = \vec{o}$; Then, *A* is given the velocity $\vec{y}$ of *B*, while *B* becomes immobile;

2. Imperfect frontal collision

The situation, In $\mathcal{L}$, is shown by the scheme which follows;

The collision happens at a tangent point, *Z*, common to the spheres *A* and *B*; The scheme which follows shows that;

Obvious rotations and displacements, of the two balls, hold, with the relations *r* = *a* and *s* = *b*, and, $h\vec{a} + \vec{b} = h\vec{r} + \vec{s} = \vec{o}$; Since the incidence angle, q, between (T) and $\vec{a}$, and, that of reflection, between (T) and $\vec{r}$, are equal, and since $\vec{a}$ and $\vec{b}$ are of opposite directions, the incidence and reflection angle between (T) and $\vec{b}$, and between (T) and $\vec{s}$, is also θ; This is shown by the scheme which follows;

Two remarkable collisions are examined;

1 – The ball *A* is immobile in R

This means in $\mathcal{R}$, $\vec{x} = \vec{o}$;

Then, in $\mathcal{L}, \vec{r} = \frac{1}{h+1}\vec{y}, \vec{a} = -\frac{1}{h+1}\vec{y}, \vec{b} = \frac{1}{h+1}\vec{y};$;

The two balls meet at the tangent point, Z, to the spheres; The following scheme shows that (Figure 6).

Since there will be rotations and displacements, it will be natural to consider, at z, the tangent unit vector, $\vec{t}$, to the two spheres, and then, the, orthogonal, central unit vector, $\vec{c}$, to these spheres, as shown in the scheme which follows:

Calculations are performed from the following scheme, with the relations, $r = a$ *and* $s = b$ and, $h\vec{a} + \vec{b} = h\vec{r} + \vec{s} = \vec{o}$ (Figure 7).

2 – The ball *B* is immobile in R

This means in $\mathcal{R}, \vec{y} = \vec{o};$

Then, in $\mathcal{L}, \vec{r} = \frac{h}{h+1}\vec{x}, \vec{a} = \frac{1}{h+1}\vec{x}, \vec{b} = -\frac{h}{h+1}\vec{x};$

What remains is similar to the previous;

Collisions and forces

Suppose we strike a physical object with some device, linearly and regularly, at each moment of time, t; The physical object is given, at each strike, the velocity $\vec{a}$; We suppose there is no resistance to slow down the object, then,

At t=o, the velocity is $\vec{v} = \vec{o}$

At t=1, the velocity is $\vec{v} = \vec{a}$

At t=2, the velocity is $\vec{v} = 2\vec{a}$

...

At t=n, the velocity is $\vec{v} = n\vec{a}$

...

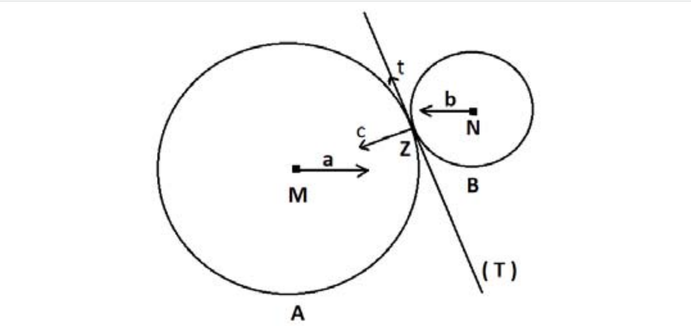

Figure 6: The orthogonal, central unit vector, $\vec{c}$, to these sphere.

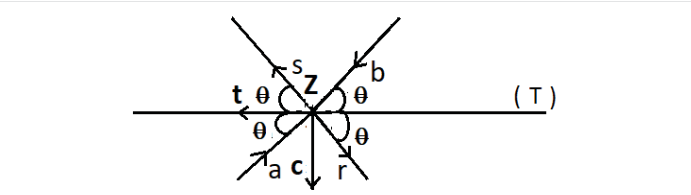

Figure 7: In the given figure, $r = a$ and $s = b$, and, $h\vec{a} + \vec{b} = h\vec{r} + \vec{s} = \vec{o}$.

We can see that the difference of consecutive velocities per time unit, or acceleration, $\frac{\Delta\vec{v}}{\Delta t} = \frac{\vec{v}_{n+1} - \vec{v}_n}{t_{n+1} - t_n} = \vec{a}$, is a constant vector; this means, then, that strikes are forces.

The theory of elements

When Newton stated his law of universal attraction, he certainly acted as a Scientist; Newton knew the existence of the centrifuge force, due to self rotating objects, discovered by Huygens; Then, why does not Earth explode; The result was the statement of the universal attraction; The story of the apple was a simple interface destined to the public; Maybe; Later, the birth of the theory of electricity introduced the repulsion, and then, matter was given the power of attraction/repulsion [1,2].

But, when your culture teaches you that matter is totally passive, and then, can never have any power at all, you become forced to find, at least, another justification to the fall of the apple onto the Earth; Since the apple always falls onto the Earth, I had to search for another reason than attraction; I came, then, to the idea that something must push the apple toward the Earth; Then, space pressures seemed to be well indicated to justify why any physical object always returns to the Earth when thrown onto the air; The idea took hold and I found, finally, four data to govern all physical elements; These four data were the basis to build my theory, named, "The Theory of Elements"; These four data are viz., 1 – Space; 2 – Time; 3 – Matter; and 4– Pressure. Space is infinite; Time is infinite; Matter is infinite; Pressures are infinite at the infinity of infinities.

Note: Since matter has, now, no power of attraction/repulsion, material attraction, electric charge, magnetism, gravity, etc., must be abandoned; all must be justified with the only help of the four previous data;

The Theory of Elements states that,

* At any point Z of space and at any moment of time T, there exists a pressure P which acts on matter M*;

The result is the creation, at Z, of a space current C which flows in the direction of the pressure P; Then, $F = \frac{1}{s} = \frac{1}{s}\frac{dQ}{dT}$ where F is the intensity of P, I is the intensity of C, S is the surface where P is applied, Q is the amount of particles which crosses S per time unit t; The formula comes from the fact that, at S constant F increases/decreases as I increases/decreases, and, at I constant F increases/decreases as S decreases/increases; The newest and strongest notion in the Theory of Elements is the existence, everywhere in the universe, of the pressure, in addition to the usual notions of space, time and matter;

The spearhead of the theory are the laws of parallel and coplanar currents; Currents are such powerful tools to justify physical microscopic and macroscopic phenomena; These four laws state what follows,

* Given two parallel and coplanar currents, of intensities I_1, I_2, of non empty intersection S, and immersed in a medium where a pressure P is defined, there can exist four forces, F_a, F_r, F_f, F_b, between these currents; F_a is an attraction force, F_r is a repulsion force, F_f is a forward projection, F_b is a backward projection *;

The scheme which follows shows the situation;

Indeed,

If I_1 and I_2 are of the same direction, then, the physical objects of the intersection are subjects to the sum of velocities of I_1 and I_2 (Figure 8). These objects leave, then, the intersection toward the medium of lower pressure; This creates, so, a depression in the intersection; The pressure P between the currents and out of the currents pushes the currents against each other, this to equilibrate the pressures; This is seen as an attraction; The forward projections of the two currents are obvious;

If I_1 and I_2 are of opposite directions, then, the physical objects of the intersection gather with each other; This creates an overpressure in the intersection; The currents, so, flee from each other, to equilibrate the pressures; This is seen as a repulsion; The backward projections of the two currents are obvious;

Empiric formulas can be given to, F_a, F_r, F_f, F_b; These formulas are,

$$F_a = K\frac{I_1 I_2}{1+D^2}F$$

$$F_r = K\frac{I_1 I_2}{1+D^2}\frac{1}{F}$$

$$F_f = F_b = K\frac{I_1 I_2}{1+D^2}\frac{1}{F}$$

In these empiric formulas, K is a constant which characterizes the medium, D is the distance between the centers of the currents I_1 and I_2, and, F is the intensity of the pressure which is applied on the medium; We use the factor $(1+D^2)$ instead of the usual factor $\frac{1}{D^2}$ because the second means that the forces are infinite when $D=0$, which cannot be true, while the first means that the forces depend only on, K, I_1, I_2, F, when $D=0$, which is correct;

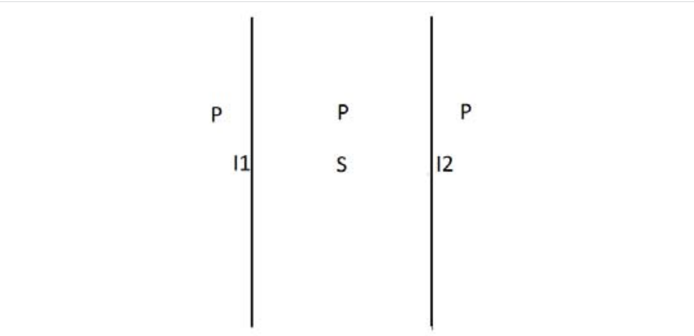

Figure 8: The physical objects of the intersection are subjects to the sum of velocities of I_1and I_2; provided I_1 and I_2 are of the same direction.

Note: If the currents are coplanar but not parallel, we use the trigonometric functions, or, the vector decomposition into parallel and orthogonal components;

The Laws of parallel and coplanar currants, and, the equilibration of pressures are so powerful that they succeed to guarantee the cohesion of structures such like atoms, molecules, star systems, galactic systems, etc.

Atoms and molecules

In this chapter, we study the fundamental branch of physics that is atomistic;

Alphabetic Particles

At the physical smallest levels, we find very special particles; These particles share the property to be unbreakable, under any condition; Since they cannot be broken, they are named alphabetic particles; They can be points, cubes, prisms, polygons, rough spheres, etc.; Of course, they can have different dimensions and volumes; The volume and the mass are equivalent for these particles; Suppose that at a certain moment T_0 in time, space was a cloud of immobile alphabetic particles; The application of pressures, at the moment T_1, at the infinity of infinities made these particles move in space, that is, in the cloud; The incidences and reflections induce vibratory movements to the alphabetic particles. Space becomes, then, an agitated medium, called Ether; The application of pressures is continuous in time, this to maintain the durability of created structures.

This agitation makes possible the equilibration of pressures; Indeed, High pressure mediums are more agitated than low pressure mediums; So, two adjacent mediums, one being of higher pressure, that is higher agitation, than the other, see its particles push the particles of the second medium, until the equilibration of agitations holds;

The collisions between smaller and bigger alphabetic particles makes the bigger particles displace, and, especially rotate around their axes; Since these bigger particles do have rough edges, the bigger rotating alphabetic particles make orbit around them smaller alphabetic particles; The first atoms, named alphabetic atoms, are then born; They are so called because their nuclei and electrons are alphabetic particles; The external pressures and the centrifuge forces keep these alphabetic atoms stable; The formation process continues then to include atoms, molecules, planets, solar systems, galaxies, etc.;

Atoms

Planetary systems, solar systems, galactic systems, etc., are good examples of atoms; An atom is a central self rotating nucleus around which orbit electrons, that is smaller atoms, and particles of the ether, that is small particles; The atmosphere of an atom is the entire zone which is under the influence of the nucleus; The width of the atmosphere depends on the mass, the volume, and the self rotation, of the nucleus; The atmosphere does exist because of the rough edges of the nucleus, which make orbit around it, by obvious physical induction, over certain distances because of consecutive collisions, other smaller physical objects; Indeed, rough edges induce tangential movements to the particles of the atmosphere, that is, fleeing tangential movements, from the nucleus, and collisions do the remaining; The atmosphere of an atom is the entire zone that the nucleus makes orbit around itself; The electrons are simply pushed, in the direction of the self rotation of the nucleus, by the orbiting particles of the atmosphere around the nucleus, until higher pressures are reached; We find, in the literature, that the moon orbits around the Earth because, under the effect of the central force, the moon constantly falls onto the Earth; This is not correct; The moon orbits around the Earth because it is, simply, pushed by the orbiting particles of the atmosphere of the Earth; The atmosphere of the Earth, and more generally space, cannot include macroscopic vacuum, because this vacuum will be inevitably filled by the surrounding pressures of the agitated medium which we named ether; Vacuum does exist only at the alphabetic level; Consecutive fleeing collisions then hold; Nothing is secret or supernatural, but only objects which orbit around other bigger objects, by induction due to the atmospheres of the bigger objects and the rough edges of these bigger objects; The objects are pushed by orbiting particles, of the ether, around the bigger objects; The external pressures, which exist everywhere in space by the Theory of Elements, equilibrate the centrifuge force, due to the self rotation of the nucleus; The scheme which follows shows the top view and the face view of an atom (Figure 9).

Molecules

Two atoms cannot build a molecule if their spins are of the same direction; Indeed, the external facing currents, of the atmospheres, have opposite directions, and then, repulse each other; But, two atoms spins of which are of opposite directions can easily build a molecule; Indeed, the external facing currents, of the atmospheres, have the same directions, and then, attract each other; The scheme which follows shows the top view of the situation [3].

If the atom A is of radius r_1 and self rotation s_1, and the

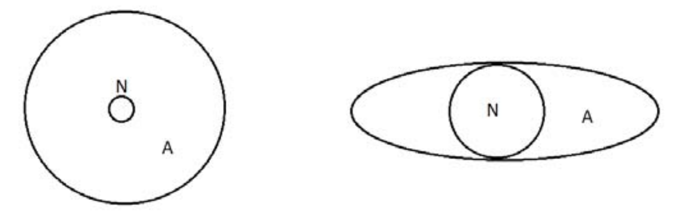

Figure 9: *N* is the nucleus and *A* is the atmosphere of the atom.

atom B is of radius r_2 and self rotation s_2, then the external tangential velocities must be the same, and the following must hold, $r_1 s_1 = r_2 s_2$, otherwise the fastest atmosphere will dig the slowest atmosphere (Figure 10). This was the horizontal bond; One remarkable situation is when A and B are identical atoms; The face view of the vertical bond is shown by the scheme which follows;

The atoms must be of identical self rotations, that is their spins must be of the same direction, otherwise the fastest rotating will dig the slowest rotating (Figure 11). Here also, the facing external currents are of the same direction; Of course, the facing external currents cannot be of opposite directions;

Note: In the horizontal and the vertical bonds, if we try to separate the two atoms, we create a vacuum between them, and the atoms will be inevitably pushed one against the other by the surrounding pressures; The bonds are then quite stable, which guarantees the cohesion of such molecules;

Here we picture the top view of three molecules of oxygen atoms O and hydrogen atoms H;

In the molecule HO, the spins of the two atoms are of opposite directions, what means they attract each other; In the molecule H_2O, the spins of the atoms of hydrogen are of the same direction, what means they repulse each other; The optimal location of these atoms of hydrogen is at the opposite ends of the diameter of the sphere of the atom of oxygen; For the same reason, in the molecule H_3O, the optimal location of the three atoms of hydrogen is at the vertices of an equilateral triangle (Figure 12).

Finally we draw, in the scheme which follows, the top view of the horizontal bonds and the face view of the vertical bonds

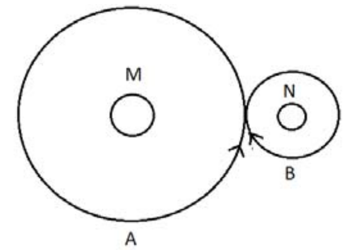

Figure 10: The atom A is of radius r_1 and self rotation s_1, and the atom *B* is of radius r_2 and self rotation〖s〗_2.

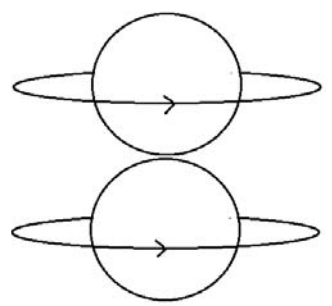

Figure 11: The atoms with identical self rotations.

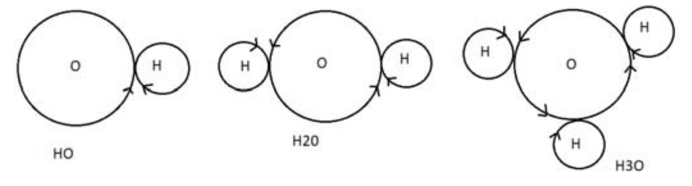

Figure 12: The molecule of HO, H_2 and H_3O with spinning directions.

for a molecule with four atoms; For the situations where the molecules have more than four atoms, the processes are similar.

S is the zone, located between the atmospheres of atoms, where currents of small particles constantly flow, under the actions of space pressures, this to maintain permanent in time the fundamental self rotations of atoms (Figure 13).

At the end, it all comes down to orienting the self rotations, or spins, of the atmospheres of the atoms;

Strong bonds

Strong stabilities of atoms in molecules can be created by a certain arrangement of the atmospheres; They can be realized in laboratories if they do not exist in nature; The rules are simple, and consist on inserting one atom between two other atoms; The scheme which follows shows the face view of the situation;

The spins of the four atoms are of the same direction (Figure 14). Each atmosphere of the middle is attracted by both the atmospheres above and below that surround it. The bonds are then very strong.

Electromagnetism

The formula of Biot & Savart is unavoidable if we are interested by electromagnetism; This formula led to the famous equations of Maxwell; Curiously, this formula includes a vector product which may seem quite unusual. The responsible, to me, is the magnetic needle; Indeed, when submitted to an electric current, the magnetic needle takes the perpendicular direction to the electric current; Hence the vector product; But, one can say that the magnetic needle just takes the direction which simply satisfies to the well known principle of maximum flow [5].

Electricity and magnetism are defined by their actions on atoms; An atom is said,

- Submitted to no current if its atmosphere is spherical;
- Submitted to a magnetic current if its atmosphere is elliptic around the focus defined by the nucleus;
- Submitted to an electric current if its external particles, that is external electrons and small particles of the ether, are extracted and the internal orbital zone is elliptic;

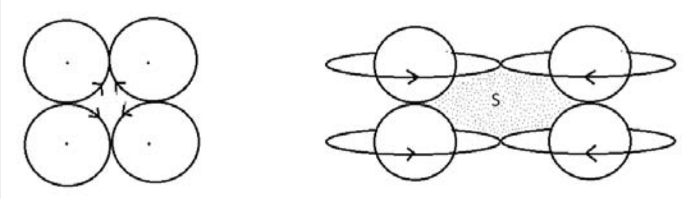

Figure 13: The zone *S* between the atoms.

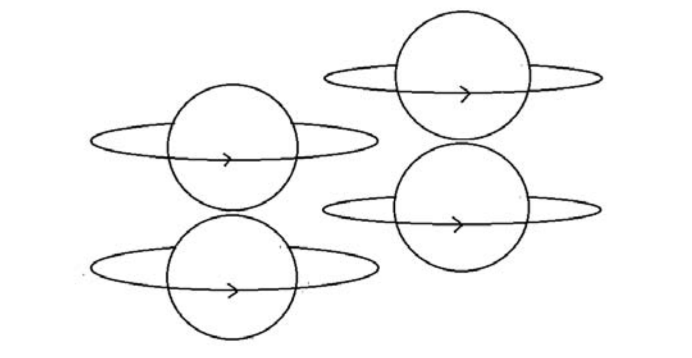

Figure 14: The spins of the four atoms in the same direction.

Magnetic current

An electric current, which flows in an electric wire, creates, by induction, another current of small particles, all around the wire; Let us recall, here, that the trajectories of the internal electrons become elliptical around the nuclei of the atoms, and the major axes of these ellipses are all parallel to the movement of the electric current; When an electric current is established in a conductive wire, certain small particles, circulating in the electric wire, strike the sides of the atoms of the wire, and the trajectories of these small particles become oblique to the wire; The small particles then induce crosses, from near to far, in the wire and the latest exit the wire; Due to the pressure outside the wire, these small particles, exiting the wire, soon follow a trajectory parallel to the electric current of the wire, and, of the same direction; The current of the small particles, created all around the wire, defines what we call a magnetic current; By comparison, we can compare the magnetic current to a river, where only water flows, and the electric current to a river where water and stones flow; The magnetic current, induced, decreases with the distance from the electric wire;

An empiric formula can be given to the magnetic current; This formula is, $B = K\frac{CI}{1+D^2}$ where *B* is the intensity of the induced magnetic current, *K* is constant which characterizes the medium, *I* the intensity of the magnetizing electric current, *C* is the reduction coefficient to go from the electric intensity to the magnetic intensity, and *D* is the distance from the wire to the line, parallel to the wire, where *B* is evaluated (Figure 15).

The difference between the magnetic current and the electric current lies, then, only on their intensities and on the involved particles;

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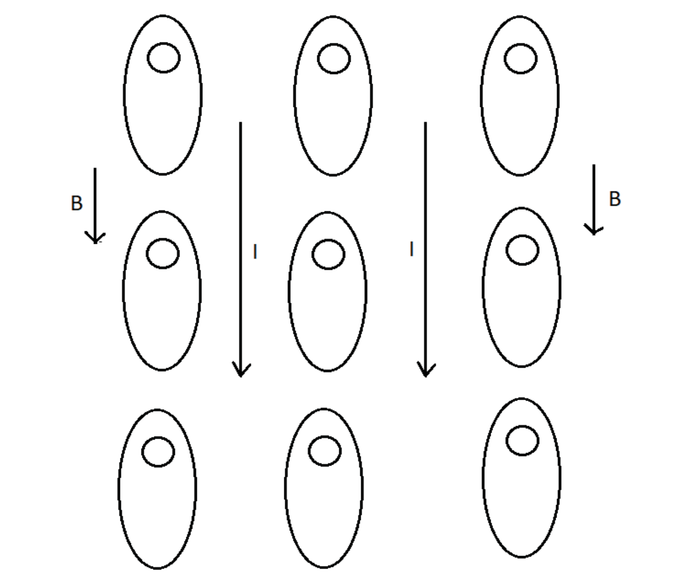

Figure 15: The scheme which follows shows the respective places of the electric current and the magnetic current.

Ferromagnetic devices, when subjected to an electric current, become magnetized, and a magnetic current flows in and around them; Because of the special bonds between their atoms, permanent ferromagnetic bodies retain their induced magnetic currents, even after the magnetizing electric current is extinguished.

Gravity

In his theory of relativity , Einstein said that gravity is due to the curvature of the couple space-time; This is quite philosophical, but difficult to believe in; Gravity is simply born each time currents encounter obstacles; The reflections and the incidences create differences between incident particles P_i and reflected particles P_r; These differences define gravity;

Suppose that a current of particles *F* encounters an obstacle *N*; Since the current *F* is constantly alimented with particles, the incidences and the reflections create a first cloud of agglutinations of agitated particles; A wall of agitated particles is then created, having the shape of a local sinusoid, and crest of which being located at its middle; Indeed, increasing agglutinations of agitated particles are created by the constant alimentation of particles, and, when the maximum allowed is reached, begin decreasing agglutinations of agitated particles; This wall is taken, then, as the new obstacle to the current *F*; The process is then repeated, with a second wall having less agitated particles than the first wall, since some incident particles are not reflected; And so on; The scheme which follows shows the vertical section of the decreasing zones of pressures which are built around, *N*;

F is the incident current of particles, *N* is the obstacle, *S* is the crest of a wall, that is a local overpressure, and, *D* is the bottom of the wall, that is a local depression (Figure 16). First, zones of gravity are created between, *F*, and, *N*; The opposite part of these zones of gravity is created by the resistance of the

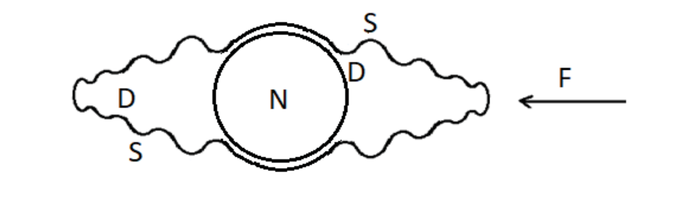

Figure 16: The incident current of particles (*F*) and the obstacle (*N*).

opposite medium to the displacement of *N*; Since the pressure carried by, *F*, is the only one present at, *N*, all what remains for, *N*, is a rotation around, the axis of, *F*; This creates the third component of the triple orthogonal system around, *N*;

Note: Another strange result of the theory of relativity is the statement that light velocity cannot be reached; That simply puts us in jail; Suppose we are in a spacecraft inside which is defined an artificial gravity *G*; Suppose we succeed to protect the spacecraft from space frictions; After a certain duration of time, we will certainly reach and exceed the velocity of light; The nearest solar systems are located at more than thousands of years to reach with light velocity; How can we reach them, then, and this is inevitable, in several days; The velocity of light must be then reached and exceeded.

Light

Light is born when incident particles hit a self rotating object, *N*, called nucleus, and are reflected according to the incidence/reflection rules; The self rotating nucleus reflects incident radiations by giving them additional velocities; Since our eyes are sensitive to the intensity of the currents of particles which impress them, the nucleus will be as bright as its self rotation is important; It is still unknown whether light vectors are particles or waves, but since there exist two ways of signal conductivity, that is the conduction by induction, and the conduction by radiation, the transmission of light signals is operated by induction, radiation and/or both of them; The scheme which follows pictures the situation;

Two kinds of reflections then hold; First, there is the reflection by radiation which consists on communicating to particles, located near the nucleus, the reflected velocities of incident particles (Figure 17). This reflection, relatively slow, is pictured, *R*, in the scheme; Second, there is the reflection by induction which consists on increasing, by induction, the self rotations of atoms, or molecules, located near the nucleus; This reflection, very fast, is pictured, *I*, in the scheme; Of course, the two kinds of reflection, *R*, and, *I*, can be found combined;

Colors

Suppose we are inside a chamber where the door and the windows are closed; So, we see the dark only, that is, nothing; In fact, we do see the dark color; By continuity, black bodies behave as there were no reflection of light particles of the medium; This simply means that the atoms of black bodies have the lowest self rotations; These atoms communicate to incident light particles the smallest additional velocities; It

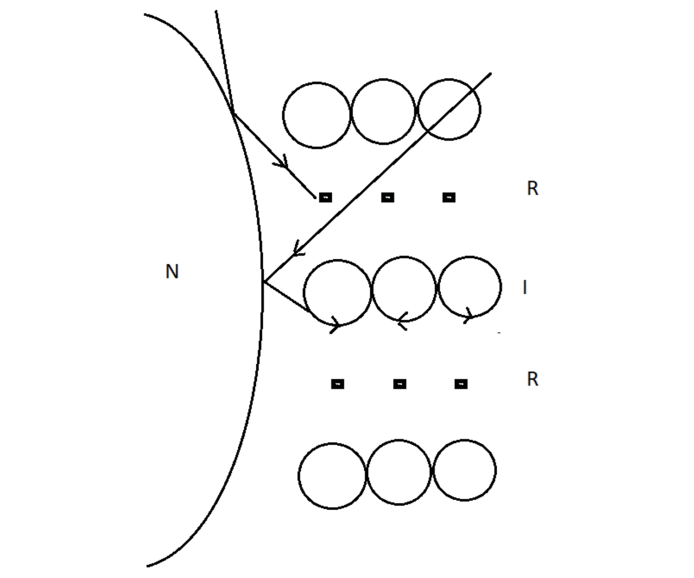

Figure 17: Two kinds of reflections.

then turns out that colors are intensities of reflections, due to the self rotation of atoms of the colored objects; We then can list six fundamental colors which, according to increasing self rotations of their atoms, are found in nature; This list gives the following colors, Black, Blue, Green, Red, Yellow, White; This list increases with the brightness of colors; The atom of glass is a special case, since it has no color, but has the highest self rotation [6].

Self rotations are very important to the reflection by induction of, say, light; Indeed, the transmission of self rotations strongly depends on the importance of these self rotations; So, bodies communicate signals as high as the self rotations of their atoms are important.

Astrophysics

As a consequence of what was formulated for the extremely small, that is the atoms level, the interpretations of space phenomena were quite unexpected; The supernatural continued to fascinate cosmologists, while the supernatural is mainly in the domain of religion;

Planetary systems

Planetary systems are the simpler structures because satellites orbit around their Nuclei while their spins are of the same direction as those of the nuclei, that is planets; The satellites and the nuclei repulse then each other and the surrounding pressures guarantee the equilibriums; Orbits almost circular, which makes the planetary systems look like alphabetic atoms;

Solar systems

Solar systems are somewhat more complicated; Here, Orbits are elliptic and planets do not have necessarily the same spins or the same inclinations; Honestly, I do not have enough elements of judgment to say whether our solar system

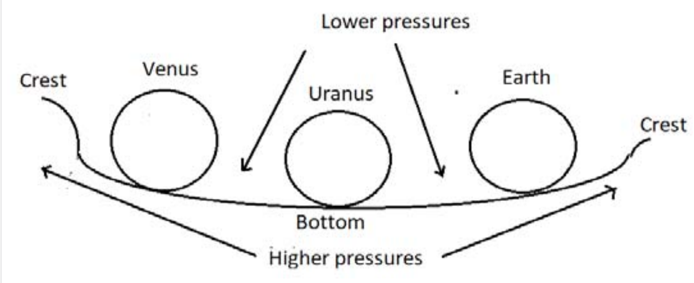

Figure 18: The differences of pressures in the bottoms of the local sinusoids holding the three situations pictured.

is submitted to a space magnetic current or a space electric current; But one of them does hold; The different spins of the planets are simply justified by the previous short study of gravity; Indeed, the differences of pressures in the bottoms of the local sinusoids makes hold the three situations pictured by the scheme which follows (Figure 18).

Galactic systems

Galactic systems are the most complicated; Like planetary and solar systems, the nucleus is born first, followed by the different satellites; Galaxies are examples of complex atoms;

Some structures are not galaxies, because they do not have nuclei, as the galaxies do; These structures are space hurricanes, that are subject to disappear; An example of such hurricanes is the structure named *GS*-10578;

Novas

There exist two kinds of novas, that is star novas and galactic novas; star novas are due to the sudden appearance of storms of space winds, which strike the stars, and make them self-rotate faster and then become brighter, to finally explode; The result is the birth of smaller and faster self-rotating, that is brighter, stars; The galactic novas are born when two different galaxies have spins of opposite directions, that is attract each other, and that collide; The fastest digs the slowest; The result is the birth of a smaller and faster nucleus of a new galaxy, because it was communicated the spin of the disappearing galaxy [7]. Ome of the examples are described below:

Black holes

Black holes are either space hurricanes or galaxies nuclei which offer us their poles, north or south; Indeed, the south and north poles of Nuclei of galaxies do not reflect particles on large distances.

Space current

We are submitted to a space current which includes matter from alphabetic particles up to meteorites and asteroids; This space current maintains permanent displacements and self-rotations of structures from atoms up to galaxies.

Appendix

In an orthonormal and immobile referential $\mathcal{R}=(O,\vec{i},\vec{j},\vec{k})$, we consider the collision between a solid ball, *A*, of mass *m* and another solid ball, *B*, of mass *l*; We suppose neither *A* nor *B* are disintegrated after the collision; Just before the collision, the velocity of *A* is $\vec{x}$ and that of *B* is $\vec{y}$; After the collision, the velocity of *A* is $\vec{u}$, and that of *B* is $\vec{v}$; The collision is supposed to be perfectly elastic;

In $\mathcal{R}$, the conservation of the momentum is written as, $m\vec{x}+l\vec{y}=m\vec{u}+l\vec{v}$, and, the conservation of the kinetic energy is written as, $\frac{1}{2}mx^2+\frac{1}{2}ly^2=\frac{1}{2}mu^2+\frac{1}{2}lv^2$;

Then, if we set $h=\frac{m}{l}$, we get,

$$h\vec{x}+\vec{y}=h\vec{u}+\vec{v} \qquad \text{(i)}$$

$$hx^2+y^2=hu^2+v^2 \qquad \text{(ii)}$$

Now, we consider an orthonormal referential $\mathcal{L}=(\Omega,\vec{i},\vec{j},\vec{k})$, which moves at a velocity $\vec{\mu}$ relatively to $\mathcal{R}$; If $\vec{a}$ is the velocity of *A* in $\mathcal{L}$, just before the collision, and $\vec{b}$ that of *B*, and, $\vec{r}$ is the velocity of *A* just after the collision and $\vec{s}$ that of *B*, then, the expressions of the velocities are then,

$$\vec{x}=\vec{\mu}+\vec{a},\vec{y}=\vec{\mu}+\vec{b},\vec{u}=\vec{\mu}+\vec{r},\vec{v}=\vec{\mu}+\vec{s};$$

(i) Tells, $h(\vec{\mu}+\vec{a})+(\vec{\mu}+\vec{b})=h(\vec{\mu}+\vec{r})+(\vec{\mu}+\vec{s})$, that is,

$h\vec{a}+\vec{b}=h\vec{r}+\vec{s}$; Then, the conservation of the momentum holds in $\mathcal{L}$;

(ii) tells, $h(\vec{\mu}+\vec{a})^2+(\vec{\mu}+\vec{b})^2=h(\vec{\mu}+\vec{r})^2+(\vec{\mu}+\vec{s})^2$, that is,

$$h\mu^2+2h\vec{\mu}\vec{a}+ha^2+\mu^2+2\vec{\mu}\vec{b}+b^2=h\mu^2+2h\vec{\mu}\vec{r}+hr^2+\mu^2+2\vec{\mu}\vec{s}+s^2,$$

that is,

$ha^2+2\vec{\mu}(h\vec{a}+\vec{b})+b^2=hr^2+2\vec{\mu}(h\vec{r}+\vec{s})+s^2$ that is,

$ha^2+b^2=hr^2+s^2$; Then, the conservation of the kinetic energy holds in $\mathcal{L}$;

The conservation of the momentum and the kinetic energy, in collisions, holds in any orthonormal referential;

When a self-rotating nucleus, *N*, with its orbiting atmosphere, *A*, is submitted to a higher/lower current of particles, then its self-rotation and the orbital velocity, of the atmosphere, are increased/decreased; This is shown by the scheme which follows (Figure S1).

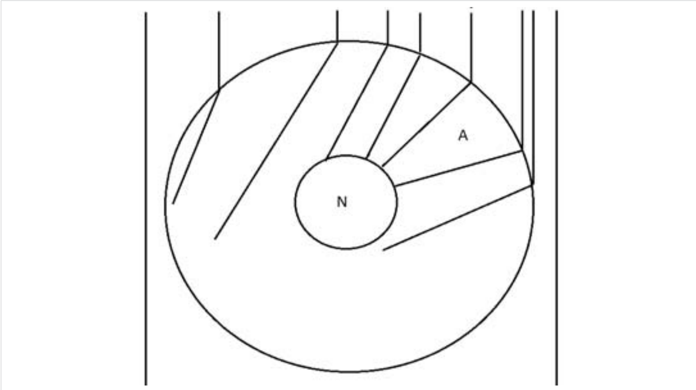

Figure S1: We can see that the particles of the incident current tend to increase/decrease the self-rotation of the nucleus and its displacement.

Conclusion

The spin of a particle is a vector quantity that is held by the self-rotation axis of the object. The spin is measured by the intensity of the self-rotation of the object around its axis. Collision is a sudden and forceful, but direct contact of two bodies. The collision is assumed to be perfectly elastic. Newton's laws are universal. An electric current, which flows in an electric wire, creates, by induction, another current of small particles, all around the wire. The colors are intensities of reflections, due to the self-rotation of atoms of the colored objects. The star's novas are due to the sudden appearance of storms of space winds, which strike the stars, and make them self-rotate faster and then become brighter.

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