Theory On Constant Irrepressible Universal Energy
--a theory on gravitation

by

Roger W. Seiler

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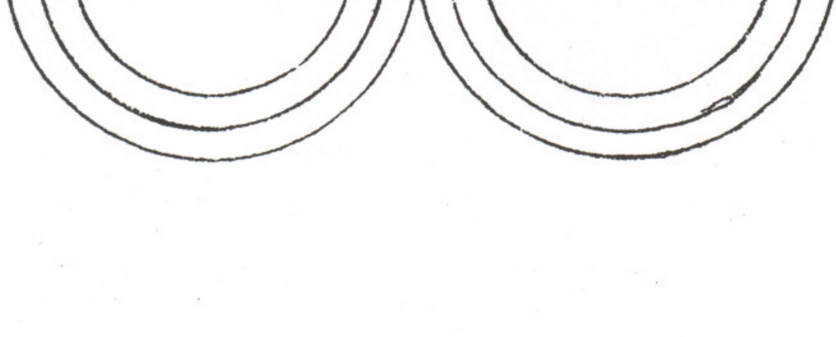
--a theory on gravitation

The phenomenon of gravity is not a distinct force, but instead its properties are the effects of two functions of a Constant Irrepressible Universal Energy. These two functions are: a) the intrinsic acceleration of all masses uniformly in three dimensions due to a force resulting from the Constant Irrepressible Universal Energy within the masses; b) the separating force acting between all masses due to the Constant Irrepressible Universal Energy existing exterior to and between these masses. The basic assumption in this assertion is that the Constant Irrepressible Universal Energy exists. A conclusive proof of its existence is not yet at hand, but the probability of its existence is extremely enhanced by the manner in which it would completely explain gravitational phenomenon, if it does exist. Following, is an examination of the gravitational effects of this Constant Irrepressible Universal Energy, assuming that it exists:

1. <u>Intrinsic Acceleration</u>

Two still objects in space will seem to gravitate towards each other, because as they expand uniformly in three dimensions, the expanding outer surface of the first object will approach the expanding outer surface of the second object. The analogy is to place two balloons with their centers at a fixed distance from each other. Then, maintaining this given distance between centers, the balloons are inflated until the expanding surfaces of the two balloons touch.



The rings denote the various stages of expansion.

2. Separating Force

The Constant Irrepressible Universal Energy is so-called because it exists everywhere in space and is constant for every absolute unit of space. In order for it to be constant for every absolute unit of space, it must be irrepressible (in some ways similar to the way in which liquids are incompressible). Since the CIUE exists everywhere, naturally it exists outside of every object as well as within them. However, this energy which exists outside of an object has no effect on it unless it is between the object and another object so that it can exert a force. An analogy would be a spaceman trying to push his spacescooter around. He pushes on it, and the main result is that he just pushes himself away from the scooter, but doesn't move the scooter. Instead, if he had some large mass to stand on, when he pushes on the scooter, it will move. This is because for every force there must be an equal and opposite reacting force, or in other words, our spaceman has to have something to push against while he pushes on some object. Thus, the CIUE only effects an object when it can push against some other object in order to exert a force between them.

When the CIUE is able to exert a force between objects, it accelerates all of the objects away from each other as they expand intrinsically. The farther two objects are from each other, the more absolute units of space exist between them, and thus, the more CIUE (and therefore, force also) exists between them. Of course, as two objects expand, they have more surface area (measured in absolute units) exposed toward each other, so that they have even more separating force acting between them. Since more force is acting between them as they expand, they will tend to accelerate away from each other still, despite their increase in absolute mass due to intrinsic acceleration. However, if the objects are quite close, they will not be accelerating away from each other as fast as their surfaces are expanding toward each other, because the force caused by the CIUF between them is not as great as it would be if they were farther away from each other. If they were far enough away from each other, the CIUE would be so great between them that it would cause a force that would accelerate them away from each other faster than their surfaces are expanding toward each other. Thus, they will seem to move away from each other instead of approach each other as in the first case.

3. <u>Constant Size Relationships</u>

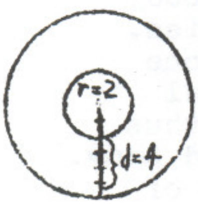
All objects in the universe normally maintain the same three dimensional sizes relative to each other. This is because of several factors which exist in our expanding universe. First, the force which intrinsically accelerates masses, and which separates them as they expand, is constant. That is, the enérgy that produces this force exists everywhere in space and exists in a constant quantity per every absolute unit of space. Thus, when an ultimate material particle accelerates in expansion due to the force (produced by the CIUE) acting on it from within, it encompasses more absolute units of space. Since it encompasses more absolute units of space, it also encompasses more of the CIUE, and thus, more force. Simultaneously, as the particle expands, its outer surface is exposed to more of the force caused by the CIUE outside of it which is acting to maintain separation between this particle and all other particles. The result of the increase of intrinsic and extrinsic force acting on the individual ultimate particles within a body is that the body as a whole expands. Relative to what the mass of the body was previously, it has increased as a function of the body's intrinsic expansion. In other words, the body has increased in mass because due to expansion, the body contains more CIUE which gives it more mass. To say it still differently, the mass has increased beeause the velocity of its expansion has increased, and as velocity increases, mass increases.

There are other conditions in this situation to note. One is that since the force caused by the CIUE is acting on the ultimate particles of matter individually, which are presumably uniform and equal in mass, we can treat the effect on mass as equal everywhere since all of the masses being acted upon are equal. However, the spaces between these particles are not equal from body to body, which accounts for their differing densities. That is, since the distances between particles in one body may be more than those of another body of equal size, the first body will have less particles and thus less mass in proportion to its size than the second body. Therefore, when we try to compute the acceleration of expansion of a body induced by the increasing force contained and encountered by the ultimate particles within it, we must realize that the inequalities in the spaces between particles of one object with respect to the spaces between particles of another object will produce inequalities in the surface accelerations of the two objects.

The result of these factors is that in a smaller of two objects, its total intrinsic force (referring to the total force acting within the entire object, not just the expanding force within its ultimate particles) equals its size times its acceleration (if the units of measurement are compatible), or $F = ra$. In a larger object, the formula for relating its properties to those of the smaller object is $Fn^3 = (rn^2)(an)$, where n represents the number of times the second object's radius from center to surface (if its shape were transformed to a sphere) is longer than that of the first object (if its shape is also transformed to a sphere, and if the units of measurement are compatible—otherwise inclusion of a constant is necessary to adjust incompatible standards of measure). This means that as size increases, the total intrinsic expanding force of a body becomes amplified according to the cube of the proportional increase in radius; the radius is the product of the square of the proportion between the increase in radius and the original radius, and the original radius; and the acceleration of expansion increases in direct proportion to the proportional increase in radius.

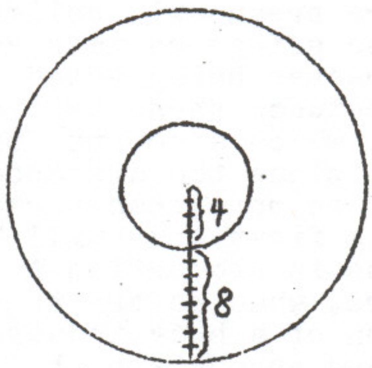
I re-emphasize that mass is not an effecting factor here because F represents the total force caused by CIUE acting within a body, and as pointed out before, this force varies only with increase in volume, or size. As pointed out before also, the acceleration of expansion will always remain in the same proportion to the radius of any object (treating it as a sphere of the same volume as the object, regardless of the object's real shape), which is increasing. Thus, as a body expands, it will always remain in the same size proportion to all other bodies around it.

Example:



$$Fn^3 = (rn^2)(an)$$
$$16\cdot 1^3 = (2\cdot 1^2)(8\cdot 1)$$
$$16 = (2)(8)$$
$$16 = 16$$

$$d = v_1 t + ½at^2$$
$$d = 0(1) + (½)(8)(1^2)$$
$$d = (½)(8)$$
$$d = 4$$

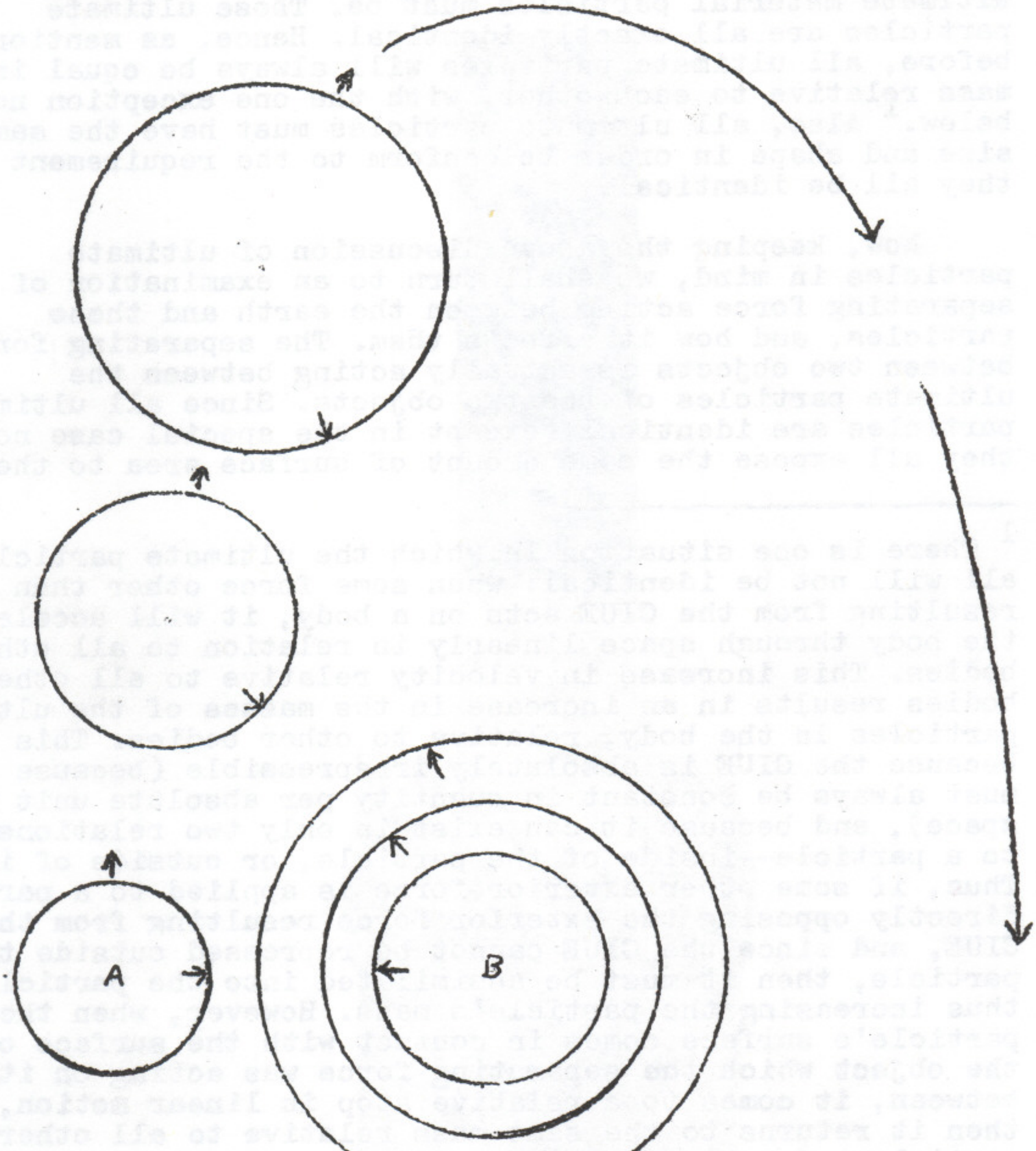


$$Fn^3 = (rn^2)(an)$$
$$16\cdot 2^3 = (2\cdot 2^2)(8\cdot 2)$$
$$16\cdot 8 = 8\cdot 16$$
$$128 = 128$$

$$d = v_1 t + ½at^2$$
$$d = 0(1) + (½)(16)(1^2)$$
$$d = (½)(16)$$
$$d = 8$$

4. Orbits

The orbits which bodies make around other bodies (like planets around our sun) are caused by the intrinsic acceleration of the bodies. Imagine a sphere approaching another larger sphere at a uniform velocity from one side. As the smaller sphere passes the larger one, it will be eclipsed by it because as it passes, both spheres are expanding. In the illustration, since A is accelerating towards B on a line perpindicular to its velocity relative to B, its velocity relative to B must change in direction. Thus, object A orbits object B, and we have the effect of a so-called "warping of space."



5. Gravity and Bodies of Differing Mass, Size, and Shape

It is a known fact that regardless of differences in mass, size, or shape, any two bodies will accelerate toward the earth at the same acceleration, and if they are dropped at the same moment from the same height (neglecting air friction), they will strike the earth at the same moment. This phenomenon is due to two factors: the properties of the ultimate particles of matter, and the effect on them of the separating force (product of CIUE) between them and the earth.

First, we shall examine what the properties of the ultimate material particles must be. These ultimate particles are all exactly identical. Hence, as mentioned before, all ultimate particles will always be equal in mass relative to each other, with the one exception noted below.[1] Also, all ultimate particles must have the same size and shape in order to conform to the requirement that they all be identical.

Now, keeping the above discussion of ultimate particles in mind, we shall turn to an examination of the separating force acting between the earth and these particles, and how it effects them. The separating force between two objects is actually acting between the ultimate particles of the two objects. Since all ultimate particles are identical (except in the special case noted) they all expose the same amount of surface area to the

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[1] There is one situation in which the ultimate particles all will not be identical: when some force other than that resulting from the CIUE acts on a body, it will accelerate the body through space linearly in relation to all other bodies. This increase in velocity relative to all other bodies results in an increase in the masses of the ultimate particles in the body, relative to other bodies. This is because the CIUE is absolutely irrepressible (because it must always be constant in quantity per absolute unit of space), and because it can exist in only two relationships to a particle--inside of the particle, or outside of it. Thus, if some other exterior force is applied to a particle directly opposing the exterior force resulting from the CIUE, and since the CIUE cannot be repressed outside the particle, then it must be assimilated into the particle, thus increasing the particle's mass. However, when the particle's surface comes in contact with the surface of the object which the separating force was acting on it between, it comes to a relative stop in linear motion, and then it returns to the same mass relative to all other particles, due to the reverse of the system that increased its mass (thus, inertia is merely an effect caused by the irrepressibility of the CIUE).

separating force. Thus, all particles that are the same distance from the earth, though they may be particles of several different objects, will have the same amount of separating force acting between each of them and the earth.

In this analysis, we must not neglect the fact that we are dealing with two separating forces, the separating force between the earth and the ultimate particles, and the separating force between the particles within each object. As pointed out before, in the process of expansion, the surface particles of a large object have a much greater separating force acting between them and the other particles of the object than do the surface particles of a smaller object. Hence, the surface particles of the larger object have a greater acceleration outward from the center of the object than do those of the smaller object. Therefore, it seems as though if two objects of different size are "dropped" together with their bottom surfaces at the same height, the bottom surface of the larger object would strike the earth first (as in the illustration with section # 3). However, this is not the case since the separating force between the particles of the earth and the particles of each object is acting essentially on each individual particle of the two objects, and since the particles on the top surface of the larger object are farther from the earth than the topmost particles of the smaller object, then the topmost particles of the larger object experience more separating force from the earth than do the topmost particles of the smaller object. This condition creates an upwards acceleration on the larger object that just balances whatever amount the surface expansion of it is greater than the surface expansion of the smaller object. The end result is that the bottom surfaces of both objects will strike the earth at the same instant, regardless of difference in size.

Since the separating force between any object and the earth is acting between the individual ultimate particles of the earth and those of the object, mass has no effect on the acceleration of the object towards the earth, since the masses of all of these particles are identical. Also, because the separating force is only acting between the individual ultimate particles, the shape of the objects "falling" toward the earth will have no effect on their acceleration(neglecting air friction).

It is well to note at this point that as the individual particles expand of two objects whose surfaces are expanding toward each other, the separating force acting between them will increase because the absolute area of exposure between the two particles is increasing. This increase will maintain the same proportion between the separating force acting between two expanding particles from one moment to the next according to the formula $Fn^2 = (rn)(an)$, where r is the radius of the ultimate particles, and n is the number of times larger the radius is one moment compared with that of a previous moment.

6. Newton's Law of Universal Gravitation

The first requirement of Newton's Law of Universal Gravitation is complied with by this theory, and may be easily demonstrated. That requirement is that two particles will attract each other with a force that is directly proportional to the product of their masses. It has already been explained that regardless of the mass, size, or shape of various objects, they will all accelerate towards the earth at the same acceleration, and that if they are released at the same height, they will all strike the earth at the same time and velocity. However, though the velocity, moment of impact, and acceleration for all these objects is the same if released from the same height at the same time, their respective momentums will differ according to the difference in their masses. This is because momentum is the product of mass and velocity. According to Newton, force is defined as the change in momentum of a body divided by the change in time. Since in the example above, time is the same for all of the bodies involved, then the force each of them strikes the earth with is directly proportional to each object's momentum. Since momentum is the product of mass and velocity, and since in the example, the velocity is the same for all of the objects, then the difference in the striking forces of the different objects is due to the differences in mass between the objects. Thus, the gravitational force between each of these objects and the earth is directly proportional to the product of their respective masses and the mass of the earth.

The second requirement of Newton's law, that the gravitational force between two objects is inversely proportional to the square of their distance apart, is also met by this theory. Due to the nature of the separating force between two objects, the farther they are from each other the more separating force exists between them, and the more separating force between them the less they will gravitate toward each other. Thus, since the velocity of closure between the two objects decreases the farther apart they are, then their momentums toward each other is also less the farther apart they are. Since force is defined in terms of momentum, then the farther two objects are from each other, the less is the gravitational force between them.

7. Varying Gravitational Force and Acceleration on the Earth's Surface

Observation has revealed that both the gravitational force and acceleration of gravity are less at the equator than at the poles, and they are less at higher elevations.

The lesser gravitational force and acceleration at the equator than at the poles is due to two factors: a) the centrifugal force due to the earth's rotation is greatest at the equator; b) the diameter of the earth through the equator is greater than through the poles. The effect of the first factor is fairly obvious, so we will discuss only the second factor.

The total expansion force acting within the earth is composed of the sum of the expansion forces within each of the earth's constituent ultimate particles, and of the separating forces acting between them. The earth is fairly dense, but its density increases towards the center because the center is the focal point of all the forces of expansion, so that the matter there is forced into a high density. Due to this higher density of mass, and thus higher density of ultimate particles nearer the center of the earth, there is less space between the ultimate particles there, and thus less separating force between them than at some point farther from the center where the earth is less dense. Here the earth's forces of expansion consist of a higher proportion of expansion forces within ultimate particles to the separating forces between them than at points farther from the center. However, at every point within the earth, the sum of the forces between the point and the earth's center which are due to the expansion forces within all of the ultimate particles on that line, will always be more than the sum of the separating forces between the ultimate particles along the same line. If this were not so, the earth would fly apart. Since the radius through the equator is greater than that through the poles, the total expansion force at the surface at the equator is greater than at the poles, hence the surface at the equator is accelerating in the expansion process faster than the surface at the poles. However, this does not mean that an object would accelerate towards the earth faster at the equator than at the poles. On the contrary, the reason being that the greater surface expansion force at the equator is, as mentioned, the sum of the two categories of forces--the intrinsic expansion forces of all the ultimate particles between the surface and the center of the earth, and the separating forces between all these particles. The first category of forces is passed on from particle to particle almost as if it were by physical contact of the expanding surfaces of the particles. The second category of forces acts in the spaces between the particles and increases by addition the farther particles are from the center. An object "falling" toward the earth over the equator would have each of its ultimate particles acted upon by the total separating forces between it and all other particles in the earth (as can be readily seen, the deformation of the earth at the equator makes a greater portion of the earth's mass farther from the earth's surface there than at the poles, thus more separating force is focused on the equator). This would give the object a negative acceleration that would tend to slightly counteract the acceleration of the object's expanding surface toward the earth's expanding surface. When the object contacted the earth, then the sum of the first category of forces will act on the object by surface to surface contact. Due to the earth's deformation, the separating force between the earth and an object above the equator is greater in proportion to the sum of first category forces at the equator than they are in proportion to the sum of first category forces at the poles. Thus, there is less gravitational acceleration at the equator than at the poles, and due to less acceleration, an object will experience less force of impact (gravitational force) at the equator than at the poles.

Gravitational acceleration and force decrease with increase in altitude for much the same reason as they decrease as one approaches the equator at sea level. As an object's altitude increases, the separating forces between it and the earth's center increase in proportion to the increase in first category forces, causing an increase in the negative acceleration that tends to counteract the first category forces.

(Revision) It has been observed that gravitational force and acceleration also vary on the earth's surface due to the internal structure of the earth. This is caused by concentrations of mass in various areas within the earth, and the separating force acting between these masses and objects on the earth's surface. Naturally, these areas of high mass concentration have a higher density of ultimate particles than less massive areas. Where an area has a relatively higher density of particles in comparison with other areas, it also has less distance between the particles than the less dense areas. Less distance between the particles means there is less separating force adding up between them, like at the highly dense center of the earth. This means that a surface object directly over this high density mass concentration, and fairly close to it, will have less total separating force acting between it and the earth at that particular point on the surface than other surface points over more normal mass distributions. Hence, the object will experience more gravitational force and acceleration due to less separating force acting on it in comparison with other points on the earth's surface.

8. <u>Linear Movement of Free Bodies In Space Due to CIUE</u>

The linear movement of a body in space relative to other bodies is most likely cause by the combination of effects of several CIUE separating forces acting between the linearly moving body and several other bodies.

To simplify, the Theory On Constant Irrepressible Universal Energy describes the universe as an expanding universe consisting of a mixture of form and energy--a weavework of lines of force produced by an infinite allpresent energy, and the forms upon which the lines of force act. The forms are determinate and can certainly be comprehended. The CIUE, on the other hand, seems to be indeterminate in many respects. Perhaps total comprehension of it is impossible. At any rate, the accelerating expansion of the forms due to the CIUE, and the separating force acting between the forms, also due to CIUE, are the cause of the effects we call gravity.

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Response dated Feb. 28, 1962 from astronomer Halton C. Arp regarding R. Seiler's "CIUE" paper...

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813 SANTA BARBARA STREET
PASADENA, CALIFORNIA

CARNEGIE INSTITUTION OF WASHINGTON

CALIFORNIA INSTITUTE OF TECHNOLOGY

28 February 1962

Dear Mr. Seiler,

In the beginning I notice one consequence which you have not taken into account and which ~~has~~ brings a serious objection to your theory. That is as masses fall together their sizes should increase! If you fix up this by saying that space is expanding as fast as the masses - then you can keep everything the same relative size. But the expansion we observe in the extragalactic nebulae, the dilation increases with distance.

Well you may be able to fix this one point up and you may have something here - I don't know. In order for a theory to represent a great theoretical advance, it must account for all the observational facts in a much simpler way than previous theories. We say now there is a force called ~~grav~~ "gravity". (really Einstein treats gravity as a property of space) Now you say there is a CIUE. Both are equally mythical - what have we gained?

(copy of letter continues on next page...)

(continuation of letter from astronomer Halton C. Arp...)

Read Bridgman, Philosophy of Science.
Read ~~B~~ Quantum Mechanics
Relativity

If you can master these subjects well enough to communicate with these people on their own terms — and retain your own imagination, originality and fresh approach then you will be a great scientist.

Best of Luck,

Chip Arp.

Response dated Feb. 28, 1962 from Princeton physicist Robert H. Dicke regarding R. Seiler's "CIUE" paper...

Mr. Seiler:

✓ The theory has many serious weaknesses and is probably incorrect.

____ The Theory has many weaknesses, but they may possibly be corrected. If so, there is a possibility that the theory may be correct.

____ There is a good possibility that the theory may be correct.

(RHD)

Via Air Mail

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11:30 AM
1962

THIS SIDE OF CARD IS FOR ADDRESS

Mr. Roger W. Seiler
Deep Springs College
Deep Springs, Calif.
via Cyer, Nevada

A-11d

Response dated Feb. 19, 1962 from Princeton physicist C.N. Yang regarding R. Seiler's "CIUE" paper...

Mr. Seiler:

____ The theory has many serious weaknesses and is probably incorrect.

____ The theory has many weaknesses, but they may possibly be corrected. If so, there is a possibility that the theory may be correct.

____ There is a good possibility that the theory may be correct.

(CNY) Your theory can not be understood by me, ~~th~~ because your terminologies are not defined.

C. N. Yang

Via Air Mail

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