Chapter 24

Curved Space–Time Theory in Modern Cosmology

The 1st Edition of this book was supposed to be a simple thesis comprising four chapters (§1 ~ §4). However, in the course of my research, I found the "relativisticists" who follow Einstein's theory of relativity to be too single-minded in their refusal to accept new ideas and doggedly protecting the outdated theory. Therefore, I prepared extra chapters (§5~§23) to emphasize the ineffectiveness of the old relativity theory and to attempt to break the cycle of dogmatic defense of it.

Undeniably, large numbers of experimental evidences clearly show that the old theory of relativity is wrong, but supporters cannot accept the facts and nor do they doubt their theory may be wrong (or perhaps they do not have the ability to build the right theory). After all, their subtle pretexts continue an ingenious lie. Therefore, the aim of this last chapter is to anticipate, display, and systematically break such pretexts dispersal in one place at one time.

The general accuracy of present instruments on space craft for cosmology is ~10^{-5}. Therefore, it can be generally said that modern physical cosmology has become an exact science. The most recent Planck space craft that launched on 14th May 2009 has a higher resolution and sensitivity than WMAP, allowing it to probe the power spectrum of the CMB to a much smaller scale (×3). On 21st March 2013, some cosmological parameters obtained from results gathered by the Planck space craft (Planck best fit) were announced, as follows:

Age of the Universe, t_o = 13.82 Gy
Hubble's constant, H_o = 67.11 (km/Mpc.s)
Physical baryon density, $\Omega_b h^2$ = 0.022
Physical cold dark matter density, $\Omega_c h^2$ = 0.120
Dark energy density, $\Omega_\Lambda = 0.6825$
Density fluctuation at 8 h^{-1} Mpc, σ_8 = 0.834
Scalar spectral index, n_s = 0.962
Reionization optical depth, τ = 0.093

These results would have us believe that cold dark matter and dark energy really exist and that the related theory of relativity is correct. Therefore, "relativisticists" are led to believe that their theory is still correct, and they deride anyone who doubts the truth of relativity.

However, the important point here is that the Planck space craft did not observe physical cold dark matter and its density, or dark energy and its density. It observed only the expected ratio of density from a presumptive physical existence. Nevertheless, these results of the Planck space craft have been used as the pretext for justification of the old relativity theory.

Historically speaking, the first man of such pretext was Albert Einstein. After publication of his static cosmos model predicted from his field equation $R_\mu \nu - \frac{1}{2} g_{\mu\nu} R + g_{\mu\nu}\Lambda = \frac{8\pi G}{c^4} T_{\mu\nu}$, the fact that the universe was actually expanding was discovered by Edwin Hubble. Thereupon, Einstein withdrew his cosmological constant Λ, expressing it as being the "greatest blunder." Eighty years later in 1998, the theory of an accelerating expansion of the universe was founded by Saul Perlmutter, Brian P. Schmidt, and Adam G. Riess. Thereupon, "relativisticists" reintroduced their cosmological constant Λ with the pretext of "negative pressure by dark energy." However, they do not have the right to presume such density exists, for the reasons given below.

According to general relativity, the expansion of the universe can be expressed as

$$H_o d_L = z + \frac{1}{2} q_o z^2 + \text{---} \qquad 24\text{-}1$$

where H_o is the Hubble constant from Hubble's law equivalent to $\frac{\dot{a}_o}{a_o}$ = 73.8(km/s)/Mpc, $H_o^{-1} f(\Omega_i)$ = $(\frac{0.71}{h})$ × 13.8 Gy = 4230 Mpc, z is the red shift, q_o is the deacceleration parameter equivalent to $\frac{a_o \ddot{a}_o}{-\dot{a}_o^2} = \frac{1}{2}\sum \Omega_i(1 + 3\omega_i)$, and a_o is the scale factor from Robertson–Walker metric $ds^2 = -dt^2 + a(t)^2[\frac{dr^2}{1-Kr^2} + r^2 d\Omega]$.

The equation $q_o = \frac{a_o \ddot{a}_o}{-\dot{a}_o^2} = \frac{1}{2}\sum \Omega_i(1 + 3\omega_i)$ can predict only that the expansion of the universe must be deaccelerating.

However, based on the Perlmutter–Schmidt–Riess foundation of an accelerative universe expansion, the value of ω_i must be $< -\frac{1}{3}$.

Therefore, ω_i is a negative pressure, for which relativistic scientists need some form of energy to justify, hence their so-called "dark energy." Another pretext was therefore given, comprising ~70% of negative dark energy of vacuum. However, according to Y.B. Zeldovich in 1968, the vacuum energy density from such pressure ($P = -\rho c^2$) should be related to the cosmological constant Λ from Einstein's field equation ($G_{\mu\nu} + \Lambda g_{\mu\nu} = \frac{8\pi G}{c^4} T_{\mu\nu}$).

Therefore, vacuum energy density is

$$\rho_{vac} = \sum(-1)^F gi \int \frac{d^3K^{\rightarrow}}{(2\pi)^3} \frac{1}{2} \sqrt{K^2 + m^2}$$

$$= \sum(-1)^F gi \frac{K_{\max}^4}{16\pi^2} \qquad 24\text{-}2$$

where $K_{\max}^4$ is the energy cutoff of the maximum energy of quantum mechanics.

The observed value of ρ_{vac} of real vacuum is

$$\rho_{\text{vac}} \sim \rho_{\text{critical}} \Longrightarrow K_{\max} = 0.01 \text{ eV} \qquad 24\text{-}3$$

This observed fact says that in their vacuum, there cannot exist any negative energy.

The WMAP satellite and Planck space craft observed only the presumptive density ratio in the universe; the observation by the Planck space craft is

$$(\Omega_{\text{univese}} = \Omega_\Lambda + \Omega_{DM} + \Omega_B + \Omega_\nu + \Omega_\gamma)$$

$$(1 = 0.683 + 0.268 + 0.049 + (\leq 10^{-2}) + 10^{-5}) \qquad 24\text{-}4$$

When the existence of negative energy and its density was really observed, Einstein's general relativity automatically became a dead theory, because Einstein's equivalence principle — the universal basis of general relativity — does not allow the existence of negative energy, as shown in the figures below.

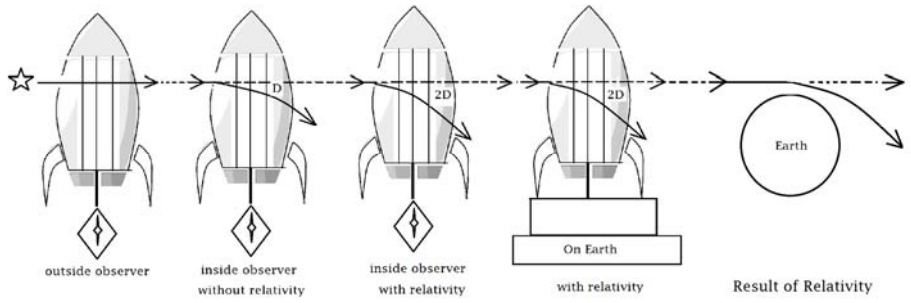

Figure 24-1

Figure 24-1 shows how Einstein's equivalence principle is related to general relativity.

Such equivalence principle must be established not only by optic and electromagnetic phenomena but also by general phenomena of the universe, including gravitational phenomena. That was Einstein's assertion and the necessary condition for establishment of his general relativity. However, in his postulated universe, negative energy and negative pressure cannot exist for accelerating the expansion of the universe. When negative energy and negative pressure against gravitational force is observed for accelerating expansion of the universe, in such theory, Einstein's general relativity must be broken down as shown in Figure 24-2.

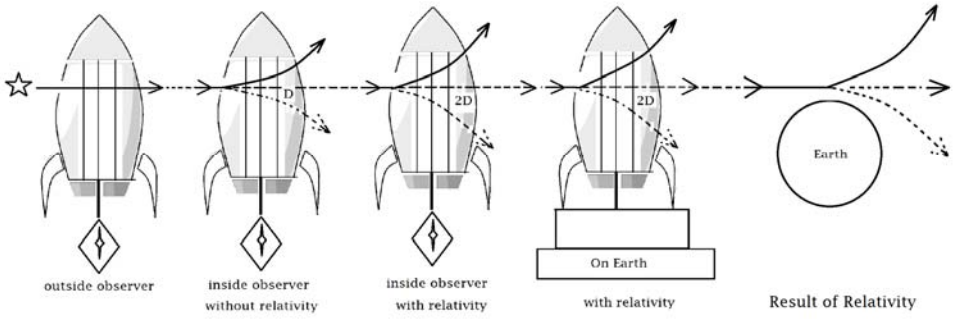

Figure 24-2

The result of this process does not comply with Einstein's general relativity for gravity. Hence, my previous statement that relativistic scientists do not even have the right to presume such density by negative energy. An accelerating expansion of the universe demands that we accept the real physical existence of negative gravitational mass, and its related negative energy and anti-gravity. In the universe, there is no "dark energy" for accelerating expansion of the universe.

When such a catastrophic dead end is expected, "relativisticists" pretext again that the cosmological constant Λ is the big problem, as given below.

As shown in Eqs. 24-2 and 24-3 above, the observed value of ρ_{vac} of real vacuum is 0.01 eV.

However, the theoretical expected cutoff value by quantum mechanics is

$$K_{\max} \sim M_p = 10^{19} \text{ GeV} \qquad 24\text{-}5$$

This gives a discrepancy value of

$$\frac{\rho_{\text{expected}}}{\rho_{\text{observed}}} \approx 10^{120} \text{ !!!!!} \qquad 24\text{-}6$$

This tremendously huge discrepancy has been blamed on quantum mechanics. But, the main cause of this problem is really only Einstein's general relativity, which does not allow negative gravitational energy, negative gravitational mass, and anti-gravity. When we can use these three parameters, however, as in the general relativity of CFLE theory, this supposed huge discrepancy can be solved simply, as shown below.

The "problematic" energy is $K_{\max} \sim M_p = 10^{19}$ GeV. However, when allowing for negative gravitational energy, negative gravitational mass, and anti-gravity, the expected total $K_{\max}$ in the vacuum of the whole universe is in fact

$$K_{\max} \sim (M_{p^+}) + (-M_{p^-}) \sim 0 \qquad 24\text{-}7$$

Therefore, the observed value would not be a discrepancy against the theoretical predicted value. That is, the energy is only

$$K_{\max} \sim 0.01 \text{ eV} \qquad 24\text{-}8$$

When the flat curvature of space–time of the universe was observed with the $\sim 10^{-5}$ accuracy of the fine instruments on WMAP and the Planck space craft, "relativisticists" again pretexted that the observed value is only about space.

However, if the space–time continuum were really a mixture of space and time, we would not need a separate extra observation for time alone.

Here, the more important point is that space and time cannot build the space–time continuum in establishment of the condition of special relativity, as Hermann Minkowski asserted (Figure 24-3).

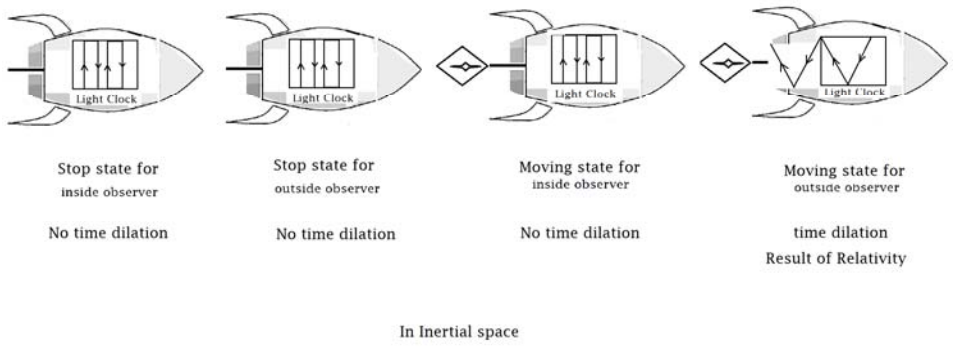

Figure 24-3

The condition for establishing Einstein's special relativity is the existence of the inertial frame. However, the inertial frame can exist only in inertial space, wherein the inertia (resistance) for the entire universe can be fulfilled only by the perfect neutral matter called the Inertialionium (cf. §14, §17) that has the electromagnetic property of $\varepsilon_o = 8.854188 \times 10^{-12} Fm^{-1}$, $\mu_0 = 4\pi \times 10^{-7}$ (N/A^2). In such space, light speed is decidedly $c = \frac{1}{\sqrt{\varepsilon_o \mu_o}} = 2.99792458 \times 10^8$ m/s, being the constant for every observer invariantly. Therefore, mass increase, time dilation, relativity of simultaneity, and length contraction can be established. If relativity of simultaneity and length contraction were to occur in pure empty space, then space and time can be mixed as a continuum. However, for all that, space and time cannot be built as a mixture, because of the existence of the Inertialionium I_o in the entire universe of space (not empty space; cf. §17).

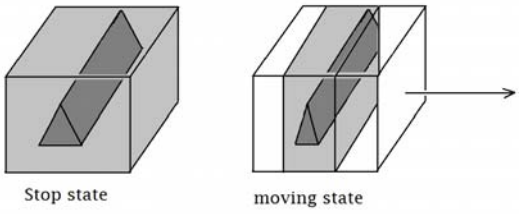

Figure 24-4. Gedanken (thought) experiment in inertial space.

Figure 24-4 shows one gedanken (thought) experiment that Einstein sometimes used.

To establish relativity, in the box made by a pure Euclidian line and filled with resistant material, there is one regular prism. For an exact experiment, we prepare a laboratory with near-perfect empty space by $\varepsilon_o \approx 0\, Fm^{-1} \neq 0$ and $\mu_0 \approx 0(\mathrm{N}/A^2) \neq 0$. When this box moves relatively for an observer, with a speed near that of light, we should observe a contracted prism with contracted inertial matter. We should recognize that the contracted object and inertial matter are in inertial space, not empty space. Therefore, we can conclude that in such inertial space, a space–time continuum cannot be built. Time can be mixed only with inertial matter.

To confirm this physical fact, we need another gedanken (thought) experiment. In perfectly empty space, the speed of light is decidedly $c = \frac{1}{\sqrt{\varepsilon_o \mu_o}} = \frac{1}{\sqrt{0 \cdot 0}} = \infty$ (unlimited fast speed), because the absence of an electric property from empty space gives $\varepsilon_o = 0$, and the absence of a magnetic property from empty space gives $\mu_o = 0$. In such an empty space experiment, the relative time dilatation and the relativity of simultaneity are not established, because light speed is not invariant for every observer (see Figure 24-5).

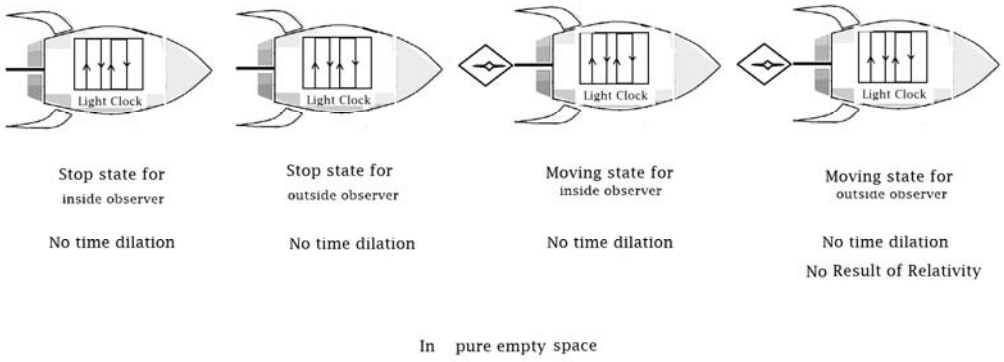

Figure 24-5

The result of another gedanken experiment (Figure 24-6), with a pure Euclidian line box and a regular prism, has unbelievably no relative effect of length contraction and time dilatation, because there is no resistance between the object and inertial matter.

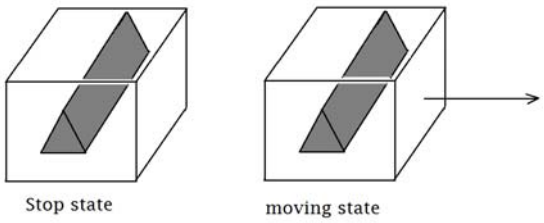

Figure 24-6. Gedanken (thought) experiment in empty space.

Therefore, we can conclude that under all circumstances, time cannot mix with space. This means the space–time continuum cannot exist in the universe.

Relativistic scientists persist in their idea that the proof of a space–time continuum exists with the bending of light by the Sun, the perihelion shift of Mercury, the GP-B experiment (precession of gyroscope or geodetic effect and dragging of inertial frame), and the gravitational lens by dark matter. But such phenomena do not occur by curved space–time. The causes are the inertial rotation of the reference frame with the change of the force line arrangements by inertial matter, like the motion by the magnetic field and spin magnetic field in classical electrodynamics (Figure 24-7).

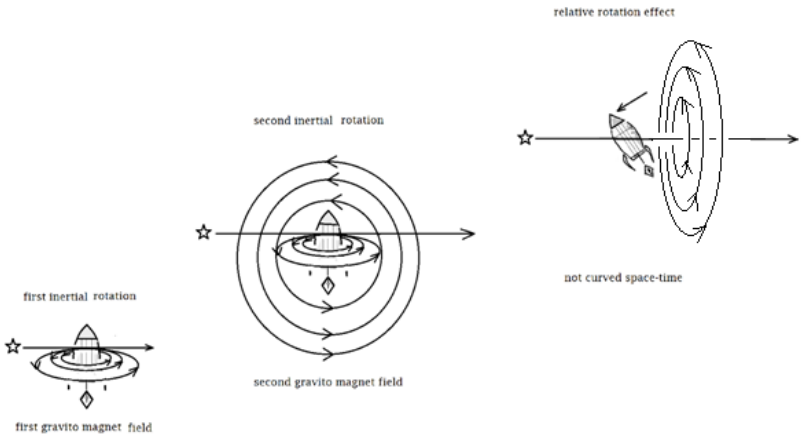

Figure 24-7

For an inside observer, such rotation appears as a rotation of the reference frame (Figure 24-8).

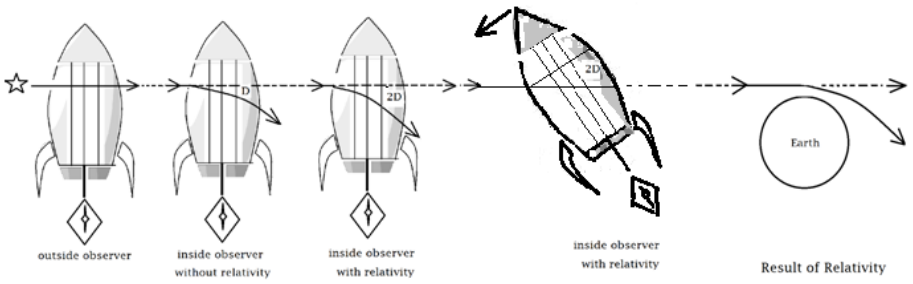

Figure 24-8

Therefore, in inertial space, such phenomena cannot occur by curve of space–time. We can thus conclude that general relativity as curved space–time theory is wrong.

Another proof for the "relativisticist" pretext is the center of the Milky Way. That is, how is it that such a huge mass ($m = 8.2 \pm 1.2 \times 10^{36}$ kg) can concentrate in such a small area ($R = 1.8 \times 10^{13}$ m)? "Relativisticists" concur that only the theory of relativity as curved space–time can explain such a black hole. But even the concept of a black hole cannot be used, because of the inevitable appearance of the singularity with infinite density, which is physically impossible for any object and material according to the uncertainty principle.

Astronomers, like Andrea Ghez and her UCLA team and Reinhard Genzel with his team at the Max Planck Institute for Extraterrestrial Physics, are confident that the Milky Way galaxy has a super-massive black hole at its center, 26 000 light-years from the solar system, in region Sagittarius A^*, observed by the 10-m Keck 1 and Keck 2 telescopes during the last decade. The reasons are as follows:

● The star S2 follows an elliptical orbit with a period of 15.2 years and a pericenter of 17 light hours ($R = 1.8 \times 10^{13}$ m) from the center object.

● From the keplerian motion of star S2, the object's mass can be estimated as $4.1 \pm 0.6 \times 10^6 M_\odot$ ($= 8.2 \pm 1.2 \times 10^{36}$ kg).

● The radius of the central object must be less than 17 light-hours, because S2 would otherwise collide with it. In fact, recent observations indicate that the radius in no more that 6.25 light-hours.

● Any model of an astronomical object but a black hole is not foreseen to contain $4.1 \pm 0.6 \times 10^6$ solar mass in this volume of space.

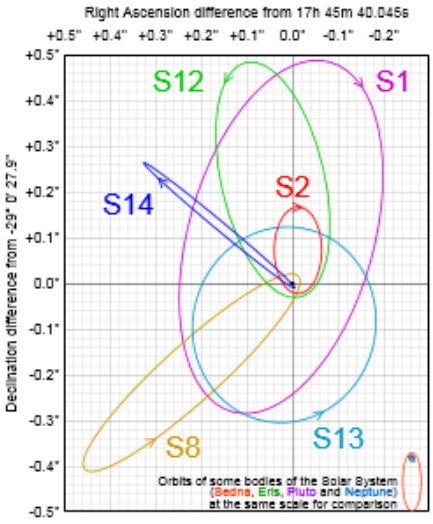

Figure 24-9. Inferred orbit of 6 stars around Milky way galactic center
(Source: http://en.wikipedia.org/wiki/File:Galactic_centre_orbits.svg)

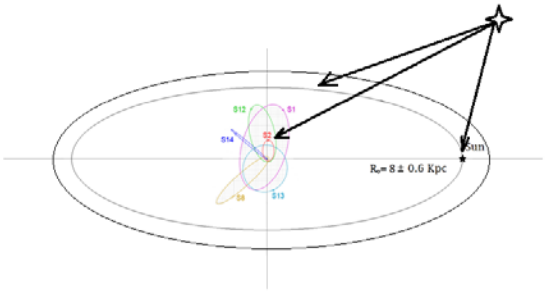

Figure 24-10

When any object is outside ($R_{\otimes}$ = 5.11 × 10^{20} m) (cf. §11) the spherical shell of the Milky Way galaxy, all the vectors should be added up to form a single vector equal to the force of gravity, a situation that would exist if the entire mass of the spherical shell of the Milky Way galaxy were concentrated in its center, according to Sir Isaac Newton. Such mass concentration by gravitational force is called newtonian mass concentration.

This mass is none other than the total mass of the Milky Way galaxy, m_{mw} = 4 × 10^{41} kg, by the keplerian motion of the Sun. By the galaxy rotation curve, its total mass is m_{mw} = 4 × 10^{42} kg. According to CFLE theory, the final mass of the Milky Way galaxy is m_{mw} = 1.4 × 10^{44} kg (cf. §11).

At the same time, the mass of the center object of the Milky Way galaxy for object S2 should appear with the determined quantity m_{co} = 8.2 ± 1.2 × 10^{36} kg. Curved space–time theory of general relativity cannot even begin to explain why the center object of the Milky Way galaxy has to have the determined quantities m_{co}= 8.2 ± 1.2 × 10^{36} kg, R = 1.8 × 10^{13} m (nor can it provide these theoretical prediction values). They can be calculated only by the simple formula $R_{sh} = \frac{2GM}{c^2} \approx 2.95 \ \frac{M}{M_\odot}$ Km, with Kepler's third law $M = \frac{R^3}{T^2}$, where R_{sh} is the Schwarzschild radius, G is the Newtonian gravity constant, $M_\odot$ is the Sun's mass, and M is the mass of the presumptive black hole. However, CFLE theory is in striking contrast to curved space–time theory, because the gravitostatic mass can be changed by the curve of force line elements (cf. §6), as shown in Figure 24-11.

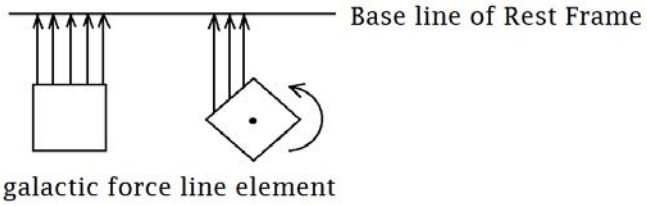

Figure 24-11

The degree of curve of the force line elements is changed from a perpendicular force state of $g = 1$ to a photonization state (cf. §6) of $g = 8$. During such maximum change of the curve, the related gravitostatic mass is also changed by the factor of d_m = 1.190208 × 10^7 (cf. §4, §7). This process is the physical essence of the M-σ relation. This means that the gravitostatic mass of normal objects is reduced as $\frac{1}{3}e$ of the electrostatic charge of the quark in quantum chromodynamics. That is,

$$m_{co} = \frac{m_\otimes}{m_d}$$

$$= \frac{1.4 \times 10^{44} \text{ kg}}{(1.190208 \times 10^7)\,(1.5)}$$

$$= 7.8 \times 10^{36} \text{ kg} \qquad 24\text{-}9$$

where 1.5 is the correspondence factor C_c (cf. §7).

The observed value is

$$m_{co} = 8.2 \pm 1.2 \times 10^{36} \text{ kg} \qquad 24\text{-}10$$

Because the huge gravitostatic mass is now reduced by the curve of force line elements, it can be said relatively that "this is a kind of mass compactification" by the galactic force that is ~10^{14} times stronger (cf. §11) than the force of quantum chromodynamics.

Because the radius of the related galaxy is $R_{\otimes} = 5.11 \times 10^{20}$ m, the related radius by mass compactification is

$$R_{co} = \frac{R_{\otimes}}{d_m \cdot C_c}$$

$$= \frac{5.11 \times 10^{20} \text{ m}}{(1.190208 \times 10^{7})(1.5)}$$

$$= 2.86 \times 10^{13} \text{ m} \qquad 24\text{-}11$$

This size is only for the radius of a photon sphere. The radius of the photon sphere, which is also the lower bound for any stable orbit, is

$$R_{Pho} = \frac{3GM}{c^2}$$

The difference is

$$d_R = \frac{R_{Pho}}{R_{sh}} = \frac{\frac{3GM}{c^2}}{\frac{2GM}{c^2}}$$

$$= 1.5 \qquad 24\text{-}12$$

Therefore, the expected theoretical radius of the center object of the Milky Way is

$$R_{co} = \frac{2.86 \times 10^{13} \text{ m}}{1.5}$$

$$= 1.91 \times 10^{13} \text{ m} \qquad 24\text{-}13$$

The observed value is

$R_{co} = 1.8 \times 10^{13}$ m 24-14

This result shows that the center object of the Milky Way galaxy is not a black hole, but rather the regular galactomic nucleus that is constituted by galactomic elements (cf. §11) by a galactic gravitational force that is ~10^{14} times stronger than the regular strong force from a nuclear reaction ($\approx 2 \times 10^{12}\ M_{\odot}$; cf. §11–13). In an active galactic nucleus or quasar, this mass of $\approx 2 \times 10^{12} M_{\odot}$ is the predicted M-σ relation and an expected consequence of the observed upper limit of σ by CFLE theory.

Matter caught by the gravitational lens is such stronger galactomic nucleus, but not dark matter and not curved space–time.

If scientists want to apply quantum theory to gravity, they must give up curved space–time theory. This is because in the theory of relativity alone, there is only the relative curve of the inertial frame without the acceleration component of gravity, and when quantum theory is mixed with the theory of relativity, the acceleration component by gravity should appear (cf. §1). Because of this relative component of gravity, curved space–time cannot be established (cf. §1–3). This means that curved space–time theory and quantum theory cannot be compatible. Thus, when any gravitational theory wants to become quantized theory, curved space–time from the theory of relativity should be abandoned.

Therefore, any theory that mixes curved space–time theory and quantum theory should be considered inadmissible. These include the black hole radiation theory, big bang theory with curved space–time, Klein–Kaluza theory, string theory with extra dimensions, etc.

Only time dilatation (relativity of simultaneity), mass increase, and length contraction really do exist. And even these realities are guaranteed only under the condition of nonexistence of a space–time continuum.

The curved space–time theory of general relativity was started in 1916 by Einstein. The Klein–Kaluza theory was developed in 1921 by O. Klein and T. Kaluza. String theory started in late 1960, developed by R. Susskind and E. Witten. The time elapsed since without any main results coming from these theories is surprisingly 100 years, 90 years, and 50 years, respectively.

Even basic unresolved old problems involve the relation between curved space–time and Maxwell's electrodynamics, that between curved space–time and other forces, and that between curved space–time and quantum mechanics.

Nevertheless, because the subtle pretexts have continued for such a long time, these "relativisticists" look less like people of self-criticism than people obstructing new research and developments in science. Not only has time and money been wasted on perpetuating the old inaccuracies, but other talents, brain power, positions, and authority have been wasted too.

Despite that 100 years have elapsed since Einstein abandoned classical electrodynamics with force (or field) lines, it appears these scientists have not been able to observe carefully why classical electromagnetic theory could be quantized as quantum electrodynamics, whereas classical curved space–time theory could not be quantized. We have to follow classical electrodynamics with force (or field) line, and at the same time abandon curved space–time from general relativity, if we really want quantization of the general theory of relativity.

Because the general relativity of CFLE theory accepts Faraday's force (field) line, in striking contrast, CFLE theory can explain qualitatively and predict and calculate quantitatively the observations of WMAP and the Planck space craft.

$$(\Omega_{univese} = \Omega_{\Lambda} + \Omega_{DM} + \Omega_{B})$$

$$(1 = 0.714 + 0.24 + 0.046) \Longrightarrow \text{WMAP}$$

$$(1 = 0.683 + 0.268 + 0.049) \Longrightarrow \text{PLACK} \qquad 24\text{-}15$$

According to the unified force theory of CFLE theory, the mass of the astronomical scale can correspond to the electromagnetic force. Therefore, the proton mass $(+m_p)$ and proton charge $(+e_p)$ are offset by the negative electron charge $(-e_e)$ and negative electron mass $(-m_e)$. The remaining particle is effectively only the neutron.

The gravitational force line gradient of the neutron is $g_n = 6.548$ (cf. §7), but its electric charge is zero. By the quark model, the ratio of the magnetic moment between the proton and neutron is

$$\frac{\mu_n}{\mu_p} = -\frac{2}{3} \qquad 24\text{-}16$$

The observed value is

$$\frac{\mu_n}{\mu_p} = 0.684979 \qquad 24\text{-}17$$

This means that by the negative electric charge of the neutron, the remaining effect of the curve of gravity from the related electric charge is

$$g_n = (6.548)\,(0.685)$$

$$= 4.485 \qquad 24\text{-}18$$

When an astronomer estimates the density of the universe by the mass–luminosity relation (cf. §7), that is essentially the relation between gravity and the electromagnetic force, and the remaining particle should only be the neutron with $g_n = 4.485$.

Because the degree of curve of the force line and its element is $g_n = 4.485$, the ratio of the rotated gravitostatic mass is

$$m_R = \frac{1}{4.485}$$

$$= 0.223 \qquad 24\text{-}19$$

This ratio is none other than the ratio of dark matter, $\Omega_{DM} = 0.223$.

Because the neutron reacts with other particles by the factor $\frac{Gm^2}{r^2}$, the total calculated effect is

$$\Omega_B = \frac{1}{(4.485)^2}$$

$$= 0.0497$$

$$= 0.049 \qquad 24\text{-}20$$

This quantity is none other than the ratio of the baryon, Ω_B

The dark energy (Ω_Λ) is Eq. 24-17, being electrically offset. That is,

$\Omega_\Lambda = 0.6849$ 24-21

This is none other than dark energy, Ω_Λ.

Therefore, we can conclude that the essence of the apparent baryon quantity, dark matter, and dark energy is really only the effect of the curve of force line elements.

Without the CFLE effect, we cannot explain the problems of dark matter from the cosmic horizon and supernova explosion (cf. §13, §8).

The ratio of the baryon quantity (Ω_B) is

$$\Omega_B = \frac{1}{(6.545979 \times 1.5)(6.545979 \times 1.5)}$$

$$= 0.01 \quad 24\text{-}22$$

The ratio of dark matter (m_R) is

$$m_R = \frac{1}{(6.545979 \times 1.5)}$$

$$= 0.10 \quad 24\text{-}23$$

The ratio of dark energy (Ω_Λ) is

$$\Omega_\Lambda = 1 - (0.01 + 0.10)$$

$$= 0.89 \quad 24\text{-}24$$

The observed values by WMAP and the Planck space craft are

$\Omega_{\Lambda\mathrm{WMAP}} = 0.714$

$\Omega_{\Lambda\mathrm{Plack}} = 0.683$

Furthermore, the dark matter of the center object of the Milky Way is

$$m_R = \frac{1}{10^7}$$

$$= 10^{-7} \quad 24\text{-}25$$

The ratio of the baryon quantity is

$$\Omega_B = \frac{1}{(10^7)(10^7\ )}$$

$$= 10^{-14} \qquad 24\text{-}26$$

Therefore, the expected dark energy is

$$\Omega_\Lambda \approx 1 \qquad 24\text{-}27$$

Without CFLE theory, the discrepancy between the results of WMAP, Planck space craft, and the other dark energy cannot be solve.

Because CFLE theory employs curved force line elements instead of curved space–time, the existence of center objects of the whole universe (so-called cosmotomic nucleus-like center objects) can be predicted (Figure 24-9). This means that the expansion of our universe is not a swell of curved space–time, but a swell of matter like fragments of a bomb explosion. Our universe started by pair production with matter and antimatter (cf. §13). According to the probability density function, antimatter built the cosmotomic nucleus, and matter spread in the space of the probability density function. Together, they built a cosmotomic system, the so-called shape of the cosmotomic probability density function (Figure 24-12; in which the red shift of the probability density function is $z > 30$).

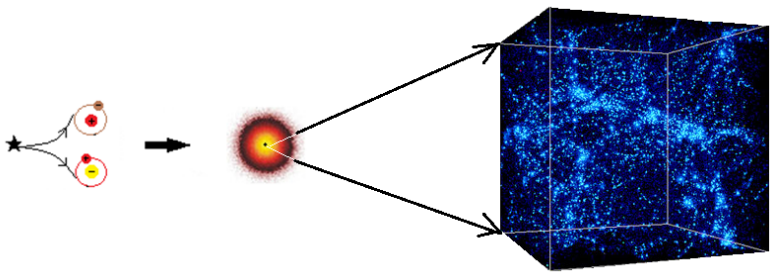

Figure 24-12

Therefore, we can expect to observe center objects of the whole universe as depicted by Figure 24-13 (in which the red shift is $z \approx 0.02$).

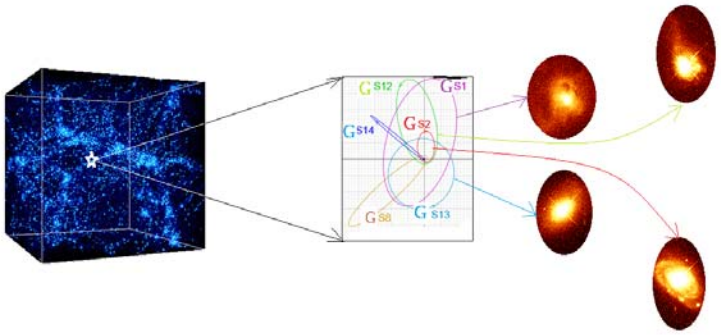

Figure 24-13

The image on the left of Figure 24-13 shows a large-scale structure of the universe. Somewhere in this universe, active cosmotomic nuclei should be existing. The middle image shows the expected galactic sources of the electromagnetic long wave, represented by G's. The image on the right shows how the expected galaxies move around the center objects of the whole universe.

The predicted size is

$$R_{Pco} < \frac{1.91 \times 10^{13}\ \text{m}}{(1.19 \times 10^{7})^2}$$

$$< 1.35 \times 10^{-1}\ \text{m} \qquad 24\text{-}28$$

The predicted mass is

$$m_{pco} > (7.8 \times 10^{36}\ \text{kg})\ (1.19 \times 10^{7})^2$$

$$> 1.1 \times 10^{51}\ \text{kg} \qquad 24\text{-}29$$

When we observe this cosmotomic nucleus, we can prove directly that curved force line elements theory is correct.