Review Article

On Large-scale Angles Cosmology

.

ABSTRACT

We discuss formation and determination for large-scale structure of the galaxies and universe. We introduce the large-scale angle model, which have a convex surface sector, cosmic angle, angle parameter, the density parameter, and the angle parameter, the "critical redshift." If the large-scale angle of the dark matter is greater than π, then it implies that our universe is a closed universe in curved space U. Finally, there are two clear hypotheses: the "Thread Big Bang" and the "tangent energy."

Keywords: Large scale structure; dark matter; black hole; angle parameter.

1. INTRODUCTION

The modern era in cosmology began with Albert Einstein's 1915 formulation of general relativity [1], which made it possible to quantitatively predict the origin, evolution, and conclusion of the universe as a whole, his sweeping extension of Newton's theory of gravity. By embedding gravity in a geometrical picture of space and time, Einstein was able to think in grand terms about the global structure of the universe [2] (see pg. 105). The positive energy theorem in general relativity demonstrated — sixty years after its discovery — that Einstein's theory is consistent and stable [3, 4]. Most modern, accepted theories of cosmology are based on general relativity and, more specifically, the predicted Big Bang [5, 6]. In the universe, the axion field represents a particularly attractive candidate for the dark matter [7]. Dark matter existence is inferred from gravitational effects on visible matter and gravitational lensing of background radiation [8]. Likewise, a significant amount of non-baryonic, cold matter is necessary to explain the large-scale structure of the universe [9, 10]. Hawking was able to come to his proof using mathematical techniques that had been developed by Roger Penrose, decide which order to solve the singularity problems, the introduction of the virtual time and construct the no-boundary universe model [11, 12]. The matter and the antimatter has close relationship and mutual influence, matter plays a central role in cosmology, and black holes are a favorite testing ground for quantum gravity [13]. In fact, the Lambda Cold Dark Matter (abbreviated ΛCDM) model affords no explanation for dark energy and dark matter in physical cosmology. It is merely a useful parametric form of the Big Bang cosmological model [19].

In our study we clearly illustrates the global geometry in large-scale angle for critical cosmological model can be produced by convex sector (or more precisely: convex two sectors) and boundary condition (i.e. the universe is closed or not), engulf effect of black hole, Hawking radiation. Finally, there are two hypotheses about our universe, which scientific explanation in support of the hypothesis.

2. LARGE-SCALE ANGLE MODEL

An important question in cosmology: what kind of geometry is needed for the universe? Despite the lack of any meaningful practice, Gauss produced one of his most worthy intrinsic geometry of the surface, in 1827. So, Einstein emphasized the need for the Gauss's theory of surfaces and see that the concept of this distance is physically significant [1] (see pg. 62). According to general relativity, space-time form a four-dimensional surface that is distorted by the presence of mass and this distortion goes by the name of gravity. And so, with the obsessive focus of universe, many astrophysicists now believe that supermassive black holes are at least 300 million of them dispersed across the universe, which are spinning because of appearance of objects, are the foundation for structure in the universe.

From general topology, we see that a set 1 (one), called the space, whose elements are called points. So the following theorem will help us to compute a convex for the universe, and it will also be useful when we apply global geometry theory to depicting dark matter, dark energy and black holes.

Theorem 1 (curl of U): In space, let $(U, \Im)$ be a topological space, so

$$U : \Im \to \Im ,\ A : U \to \mathbb{R}^n,\ A \in U . \tag{1}$$

Let $\mathbb{R}^n \subset \Im$. The sector between the curve A and the curve U be a convex [18] in the Appendix in figure A1a, and we can prove the theorem 1 in the Appendix, and we show in figure A1b-A1c.

We often went further than that, if using a parametric equation, such as the differential equation of the geodesic, only works on differential geometry — nothing else. As far as curve goes, we know, convex closed curve and circumference are homeomorphism. The shape of the curved surface, on the other hand, is associated with the curvature. If they exist, it as a point on the convex surface can be divided into three categories as its own characteristics, namely, smoothing-point (tangent cone is a plane), diamond-point (tangent cone is a dihedral), and cone-point (tangent cone is less than 2π). Let α_n be plane angle and let γ_i be dihedral, then $\partial\alpha_n / \partial\gamma_i > 0$. So, the distortion of the convex polyhedron is predictable for us, by contrast, the galaxy can distort the spacetime in which it sits. Beyond that, we may see integral geometry for the convex surface in sector P. We will continue to discuss on this sector as a top priority. But there is much more to it than that. What does it mean to say that a sector is convex surface? The convex sector is a curved universe, physically. It's this curving of the fabric of the universe that gravitational waves are fluctuations in the curvature of space which propagate through the universe as gravitational waves, so outward from its source, and we feel as gravity. Meanwhile, that the light travels in curve lines is certain in the large-scale universe.

Now we should turn our thoughts to practical matters, we think of Earth, moon and sun as a convex triangle in vertex. In non-Einstein space, let (P, U) be a topological space,

$P=\{E,M,S\}$, and let length: $a'=a$, $b'=b$ and $c'=c$. Then angle: $\zeta' \nless \zeta$, $\beta' \nless \beta$ and $\gamma' \nless \gamma$, where π is a plane, as illustrated in figure 1a.

However, during a solar eclipse, we see the moon passes between Earth and the sun, blocking most of the sun's light in figure 1b. That's why — the *E*, *M* and *S* is a straight line — that's not true. 'From Einstein's theory of gravity, that is his general relativity theory, we believe mass curves space and this can cause light to follow a curved path,' see [14]. By the fact that the solar eclipse exist, this tells us that figure 1a above is a convex triangle. A structure of the universe — the convex triangle — is defined when we give the geometry, which is simply the expression for a natural phenomenon of the solar eclipse in the curve. Our conclusions got by us from theory are supported and are proved objectively. Light or dark, *E*, *M* and *S* would always govern the surface P in the curved space U.

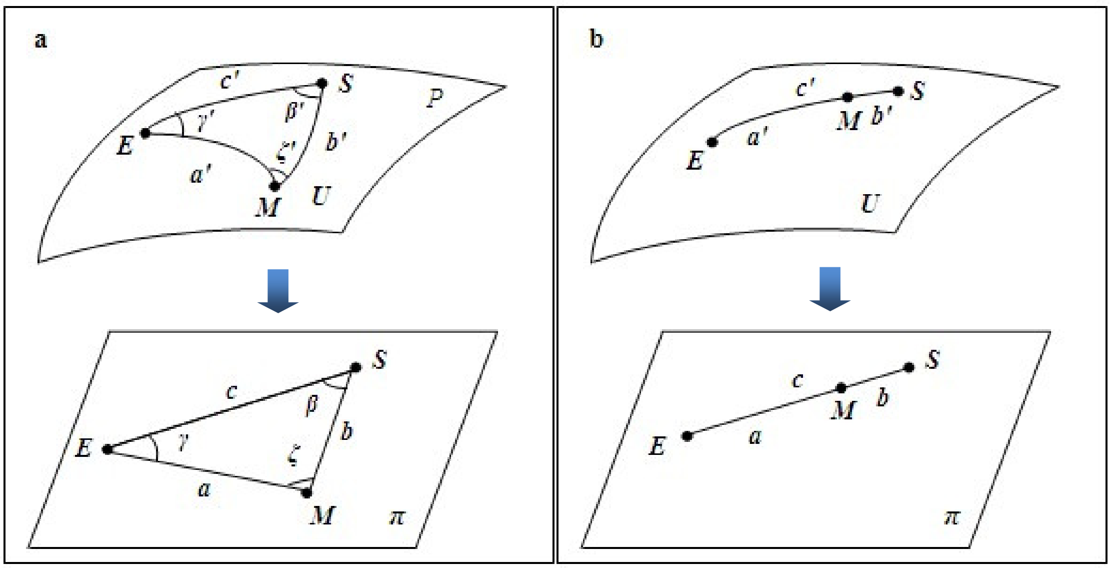

Figure 1. The diagram showing that the Earth (*E*), moon (*M*) and sun (*S*) is convex. 1a Above, is a convex triangle. Below, is a plane triangle; b Above, is a curve, we believe the curve is genuine. Below, is a straight line, we believe the straight line is no genuine.

What matters most is that Hubble's law provides a concise method for measuring a galaxy's velocity in relation to our own, unfortunately it relies on one of sciences only variable constant. The critical density ρ_{crit} of the universe: it is a concept i.e. $\rho_{\text{crit}} = 3H_0^2 / 8\pi G$, here H_0 is the Hubble constant, this parameter that indicates the rate at which the universe is expanding, and distance is the galaxy's distance from the one with which it's being compared [15].

The convex two sectors P and T (in Appendix in Figure A1b) — the malleable fabric whose geometry can be changed by the gravity of stars, planets and matter — was born.

For the large-scale universe, we need to have a stable large-scale structure and critical cosmological angle because, candidly, the critical cosmological angle is possible in physics. Our standard from for the critical cosmological angle Ψ_{crit}, is $\Psi_{\text{crit}} = \pi$.

We show the matter and dark matter for the cosmic angles $\bar{\lambda}$ in Appendix in Figure A2a. This curved space U is characterized by two properties:

(i) If cosmic angles is $0 < \bar{\lambda} < \Psi_{\text{crit}}$ (or $0 < \bar{\lambda} < \pi$), then the universe is a closed universe in Appendix in Figure A2b.

(ii) If cosmic angles is $\bar{\lambda} \geq \Psi_{\text{crit}} = \pi$, then the universe is a open universe in Appendix in Appendix in Figure A2c.

Now we remark that for convex multiple sector, in general, we have the following theorem.

Theorem 2 (all angle): Let $\bar{\lambda}_{\text{lattice}}$ be a lattice angle (i.e. all angle), and let $\alpha \in \bar{\lambda}_{\text{lattice}}$. Then

$$\bar{\lambda}_{\text{lattice}} = \sup \sum_{i=0}^{n} \alpha_i \leq 2\pi. \tag{2}$$

Theorem 3 (all angle at the point): If a lattice angle $\bar{\lambda}_{\text{lattice}} < 2\pi$ and around a point in convex sector, then for any a shortest distance (i.e. geodesic) shalt not go through the point (i.e. not sucked into the singularity).

But, to our universe, we will introduce what we call the relative angle μ, which we about to define.

Definition 1 (relative angle): Let $\alpha \subseteq \bar{\lambda}_{\text{lattice}}$ be a sub-angle (current angle), and $0 < \alpha < \pi$, then the relative angle μ is

$$\mu = \alpha^{-1} \bar{\lambda}_{\text{lattice}}. \tag{3}$$

So, absolute angle, that is π.

In general, z is called the redshift [16]. We can now begin our study of the redshift-curve relation:

Theorem 4 (redshift-curve relation): Let d is the curve length and l is the geodesic length, then

$$\frac{d}{l} \geq \cos \frac{1}{2} (1 + z)^2, \tag{4}$$

where d means the curve length comes from distance of the luminosity.

Maximum $z_{\text{crit}} = 2.545$ (i.e. critical redshift).

Physical law 1 (boundary condition): If ρ_{matter} (or $\rho_{\text{dark-matter}}$) is matter (or dark matter) density and z is redshift. Then

$$\rho_{\text{matter}} < \rho_{\text{dark-matter}} \text{ iff } z < 2.545. \tag{5}$$

Interpretations for the Physical law (boundary condition): The redshift 2.545 as a dividing line is far from a physical barrier, but it practically assures our universe there would be a stable condition. Now, we can see very early universe and open universe, such as the star formation appears at the large redshifts $z \geq 6$.

Of particular concern is cosmic angles $\lambda\!\!\!^{-} = 0$ (i.e. is that the thing, singularity), which is sparking a Big Bang [17] and [1] (see pg. 128) of explanation for $\Omega_0 = 1$ (i.e. is suppose to be the density parameter). The Big Bang of space for the limit $\lambda\!\!\!^{-} \to 0$. This is nothing but the stereotype, if the flatten matter appears to rabid, then the universe began extremely hot and dense for the Big Bang ($t = 0$, $G = 0$). Afterwards, they must be the cooled and the expanded, which would assemble their sets.

In fact, cosmic angles are valuable in cosmology. But at present, $\lambda\!\!\!^{-}$ exactly what — and what that the ages of the universe T_0 — have been maddeningly hard to pin down. It may be due to further problems hidden within the dark matter distribution across, and this is about curvature of space and the critical cosmological density ρ_{crit}.

We now look for the Ψ_{crit}-critical cosmological angle in the following form:

The angle parameter:

$$\Lambda_0 = \Psi_0 / \Psi_{\text{crit}}, \tag{6}$$

where $\Psi_{\text{crit}} = \pi$, Ψ_0 is the current angle of the universe, we also find that

$$\Psi_0 = 2\mu^{-1}. \tag{7}$$

The density parameter Ω_0, with the angle parameter Λ_0, we take

$$\Omega_0 \propto 2(\pi)^{-n} \Lambda_0^n,\ n \geq 1. \tag{8}$$

We find that the parameter relation in the classical limit depends on the solution of integral equation:

$$2(\pi)^{-n} \int_0^{\pi} \Lambda_0^n \, d\Lambda_0 = \frac{2\pi}{1+n},\ n \geq 1. \tag{9}$$

This $\Omega_0 - \Lambda_0$ relation is in figure 2.

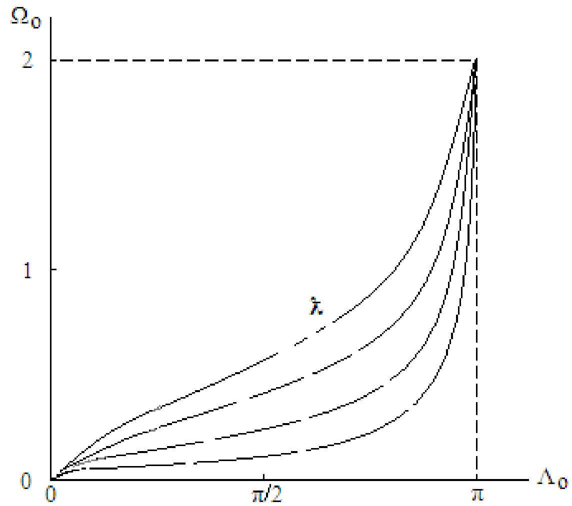

Figure 2. $\Omega_0 - \Lambda_0$ **relation curves.**

The limit $\bar{\lambda}_0^{\pi}$:

(i) If $\Lambda_0 = \pi$, then $\Omega_0 = 2$.

(ii) If $\Lambda_0 = 0$, then $\Omega_0 = 0$.

Physical law 2 (closed-world model): Let $\bar{\lambda}_{\text{matter}}$ be a matter angle and $\bar{\lambda}_{\text{dark-matter}}$ be a dark mater angle. If $\bar{\lambda}_{\text{matter}} + \bar{\lambda}_{\text{dark-matter}} = \bar{\lambda}_{\text{lattice}} = 2\pi$, and satisfies $\bar{\lambda}_{\text{matter}} < \bar{\lambda}_{\text{dark-matter}}$, the universe is closed (conversely, if $\bar{\lambda}_{\text{matter}} > \bar{\lambda}_{\text{dark-matter}}$, the universe is open).

The current angle α case: We know Keck, HST, ROSAT and Infrared Astronomy Satellite (IRAS) are helping astronomers estimate z and T_0 (i.e. the age of the universe at 13.7 billion years old) and expansion rate of the universe as well as allowing them to watch the birth of stars in other galaxies. In theory, T_0 is already a good value because it easier to convert this into an estimate of what α.

3. THREAD BIG BANG

The angle parameter Λ_0 provides an exciting new tool with which to probe the age of the universe to try to shed some light on a mysterious antigravity force called dark energy. Now, we have hypothesis as well, and the result follows:

Thread Big Bang: If $\bar{\lambda} \gtrsim 0$ (i.e. minimal angle), then a thread (curve) has at least two Big Bang (i.e. diamond-point and cone-point) — that is, the Thread Big Bang (the cause is the tangent energy pushing on the matter in the Thread Big Bang). Albeit preliminary, our result lends credence to the hypothesis. It all started with the Thread Big Bang. So, the universe is an unimaginably vast space filled with planets, stars, systems, nebulae, gas, dust — and it's impossible for us to ever explore it all. The THREAD BIG BANG of space for $\bar{\lambda}\ (0 < \bar{\lambda} \le \pi)$. The universe is as an open book. Can you imagine the book, open it quickly (e.g. 10^{-43} second), if such collisions would have left lasting marks in the cosmic microwave background (CMB) radiation, the diffuse light left over from the Thread Big Bang that pervades the universe. So, an interesting point: In the 'cosmic book' — Earth of page — is where?

4. TANGENT ENERGY

The tangent energy: For origin of galaxies and the large-scale structure of the universe, the dark flow in the universe to be moving at very high speeds and in a uniform direction, which is described as a basic universe structure to form a ring dark matter. Thus, we figured that the stuff is pulling this dark patches of matter should be the tangent energy (giant clusters of galaxies warped space time) — and this 'tangent' energy transmutes into the matter of the dark patches. The tangent angle $\bar{\lambda}_{\text{tangent}}$ is variable, we can simply write

$$0 < \bar{\lambda}_{\text{tangent}} \le \pi / 4 . \tag{10}$$

The dark flow are the vitals of the universe, its main function is to produce tangent energy in figure 3.

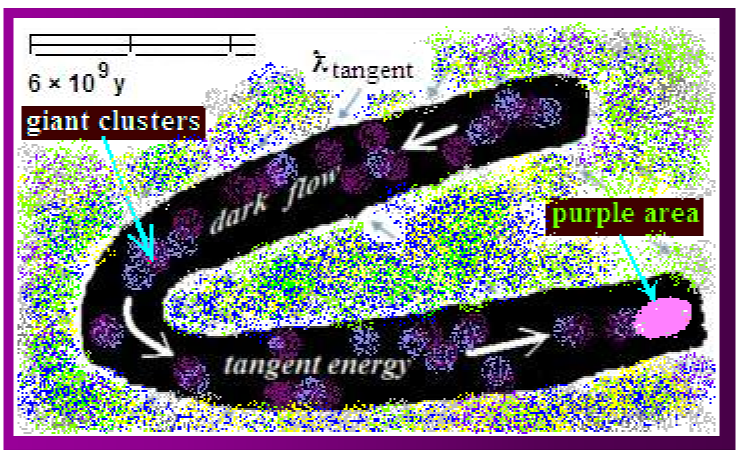

Fig. 3. The diagram showing that the dark flow of space and located about 6 billion light-years.

If we can find the tangent energy, perhaps we can determine the source is produced by a supermassive black hole (e.g. 10^6 to 10^9 $M_\odot$). Supermassive black holes in the cores of galaxies really are the result of many lighter black holes merging together.

In the dark matter case, 'transparent' matter is material composed of antigraviton, which encounters between gravitons and antigravitons lead to the annihilation of both, giving rise to varying proportions of hyperon star, the property for the same reason that antimatters annihilation.

5. CONCLUSIONS

Our universes were to be born of the redshift of about 2.545. It's going to obey Physical law 1 (i.e. boundary condition) and Physical law 2 (i.e. closed-world model). Essentially, the universe is no singularity. There are two hypotheses about our universe (i.e. the "Thread Big Bang" and the "tangent energy"), which scientific explanation in support of the hypothesis.

REFERENCES

1. Einstein, A. The Meaning of Relativity. 1955. London: ElecBook, available online at: http://www.combat-diaries.co.uk/diary29/Link%2014%20Einstein.PDF
2. Longair, M. The Cosmic Century. Cambridge: Cambridge University Press; 2006.
3. Schoen, R., and Shing-Tung, Y. On the proof of the positive mass conjecture in general relativity. Commun. Math. Phys. 1979;65:45–76
4. Schoen, R., and Shing-Tung, Y. Proof of the positive mass theorem. II. Commun. Math. Phys. 1981;79:231–260
5. Gamow, G. Expanding universe and the origin of elements. Physical Review. 1946;Vol.70, Second Series, Numbers 7 and 8:572–573
6. Alpher, R. A., Bethe, H., and Gamow, G. The origin of chemical elements. Physical Review. Letters to the Editor. 1948;73:803–804
7. Copi, C. J., Schramm, D. N., and Turner, M. S. Big-Bang nucleosynthesis and the baryon density of the universe. Science. 1995;267(5195):192–199
8. Wagoner, R. V., Fowler, W. A., and Hoyle, F. On the synthesis of elements at very high temperatures. The Astrophysical Journal. 1967;148:3–49
9. Vittorio, N., and Silk, J. Fine-scale anisotropy of the cosmic microwave background in a universe dominated by cold dark matter. The Astrophysical Journal. Part 2– Letters to the Editor. 1984;285:L39–L43
10. Efstathiou, G., and Bond, J. R. Isocurvature cold dark matter fluctuations. Monthly Notices of the Royal Astronomical Society. 1986;Jan.1,218:103–121
11. Hawking, S. W. Black holes and thermodynamics. Physical Review. 1976;D13(2): 191–197. Available online at: http://dieumsnh.qfb.umich.mx/archivoshistoricosmq/ModernaHist/Hawking.pdf
12. Hawking, S. W., Hertog, T., and Reall, H. S. Brane new world. Physical Review. 2000; D 62(4): 043501. Available online at: http://arxiv.org/pdf/hep-th/0003052.pdf
13. Nesvizhevsky, V. V., Börner, H. G., et al. Quantum states of neutrons in the Earth's gravitational field. Nature. Letters to nature. 2002;415(6869): 297–299
14. Briggs, H. Test for Einstein's gravity speed theory. 2002. BBC NEWS Science / Nature Online. Available online at: http://news.bbc.co.uk/2/hi/science/nature/2238452.stm
15. Freedman, W. L., Madore, B. F., et al. Final results from the Hubble space telescope key project to measure the Hubble constant. The Astrophysical Journal. 2001;553 (1): 47–72
16. Burbidge, G. Redshifts and distances. Nature. 1979;282(5738): 451–455
17. Tryon, E. P. Is the universe a vacuum fluctuation? Nature. 1973;246: 396–397
18. Liu, Y. H. Improve Results for Set Identities. Applied Mathematics, 2014;5(4): 677–684.
19. Andrew, P. C., Richard, D'S., et al. Galactic accretion and the outer structure of galaxies in the CDM model. Monthly Notices of the Royal Astronomical Society. 2013; 434(4): 3348-3367.

APPENDIX

Explicit proof for the theorem1:

Let GU^{Δ} and GA^{Δ} be drawing out two geodesics from vertex G, and minimal neighborhood of the vertex G is split into two sectors P and T. Let X and Y be two points in sector P, and X, Y adjacent to G so that geodesic XY^{Δ} cannot bypass the curve $GU^{\sim}$ and $GA^{\sim}$ in figure A1b. Let point E on GU. Then:

(i) Point F on $GA^{\sim}$ in figure A1b.

(ii) Point F on $GU^{\sim}$ in figure A1c.

For part (i), let geodesic $EF^{\sim}$ and XY^{Δ} on the outside of sector P, than the intersection of the G and $EF^{\sim}$. Notice that $EF^{\sim}$ be a segment of geodesic XY^{Δ}. With the same $EG^{\sim}$ on $EF^{\sim}$, and also on GU^{Δ}, as in the $FG^{\sim}$ on $EF^{\sim}$, and also on GA^{Δ}, then geodesic:

$$EF^{\Delta} = GU^{\Delta} \vee GA^{\Delta}. \tag{11}$$

So we conclude that G on the outside of XY^{Δ}. However, this is impossible.

For part (ii), let F, E on geodesic GU^{Δ}, with the same $EF^{\sim}$ on XY^{Δ}, and also on GU^{Δ}, so the $EF^{\sim}$ of the geodesic XY^{Δ} replaced by the $EF^{\sim}$ of the GU^{Δ}, as in all segment on geodesic XY^{Δ}, substitute them completely, (In universal logic, the substitution principle we could use here.) and though it is outside sector P. Prove that P is convex.

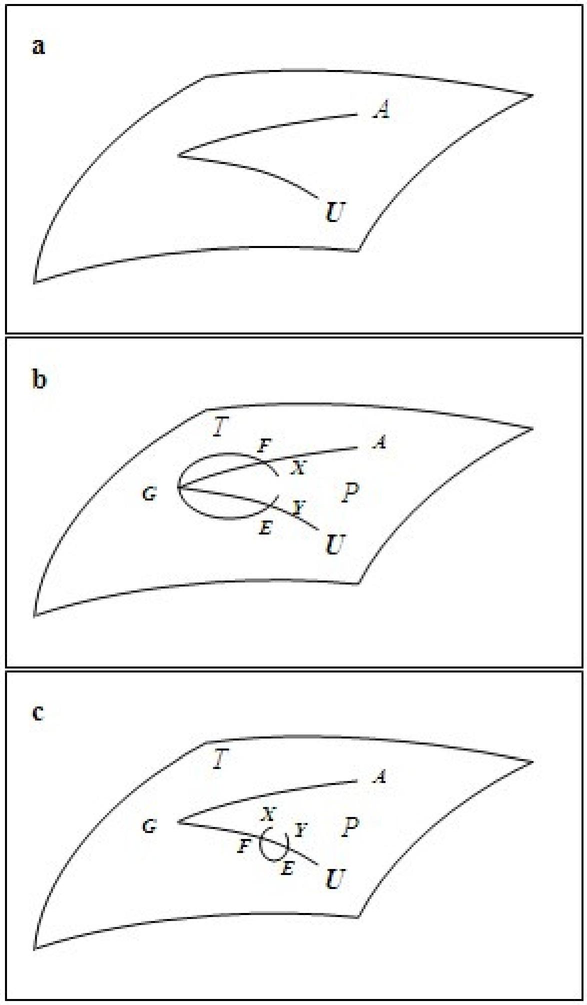

Fig. A1. A1a The sector between the curve A and the curve U be a convex; b and c The diagram showing that the sector P is convex; b Point F on GA; c Point F on GU.

The matter and dark matter for the cosmic angles λ in figure A2.

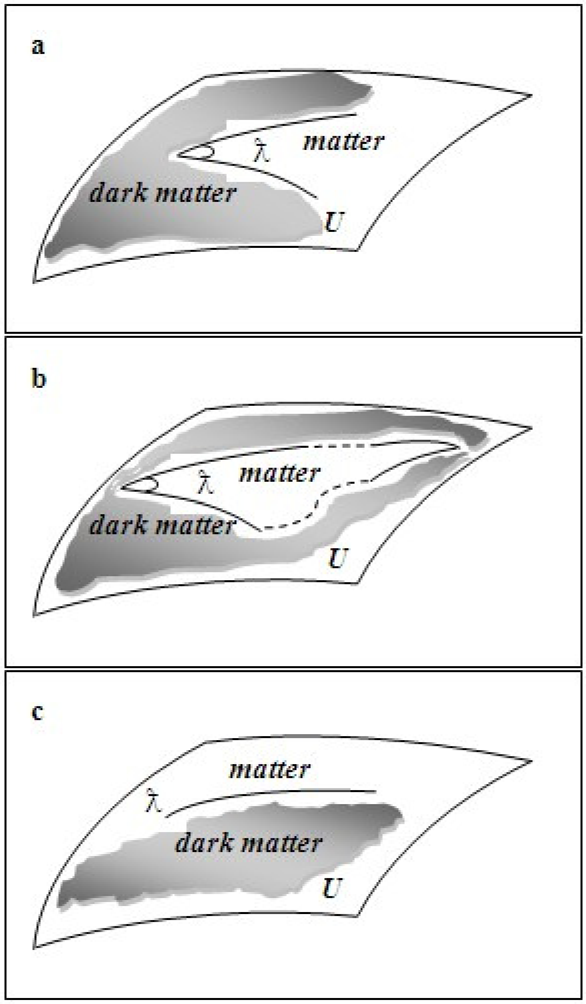

Fig. A2. The diagram showing that the shapes of space for the Ψ_{crit}-critical angle, and the dark matter are gray-shadowed. A2a and b If cosmic angle $0 < \hat{\lambda} < \Psi_{crit}$, then the universe is a closed; c If cosmic angle $\hat{\lambda} \geq \Psi_{crit} = \pi$, then the universe is a open.