

# The Good Word

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## LISLE'S ANISOTROPIC SYNCHRONY CONVENTION (ASC) MODEL FOR CREATION

by Dr. Seraphim Steger, M.D.

As we noted in our last issue, Dr. John G. Hartnett realized his own Carmeli-Hartnett modified inflationary time-dilation model was proving inadequate for solving the starlight-travel-time problem and, as a modified inflationary *big-bang* nebular accretion model couldn't deliver a robust description of the early Universe on a biblical timeline using Einstein's Synchrony Convention. In other words he was still trying to use an evolutionary naturalistic creation for the sun, moon, stars, and galaxies within a biblical timeline through time dilation. But that was not why Carmeli devised it. Carmeli was only interested in what was happening in the Universe now, not what was happening in ages past. The dynamics of the Universe were well described by Carmeli and Hartnett and without the need for dark matter or dark energy! So, in that sense, Carmeli-Hartnett's Cosmological Special and General Relativity theory had a great measure of success. However, when he used it to try and explain the miracles of creation by naturalistic laws of physics, it failed. Then, as an honest scientist, after finding errors and shortcomings in Carmeli's metric, Hartnett discarded it in favor of Jason Lisle's ASC-based model, a much more biblical model.

### INTRODUCTION TO JASON LISLE'S ASC THEORY:

#### OBSERVED TIME VERSUS CALCULATED TIME

Dr. Jason Lisle's creationist cosmology supports a young earth model of creation. In his article *Distant Starlight and Genesis: Conventions of Time Measurement*, written in 2001 under the *nom de plume* of Robert Newton, he introduces us to the difference between *observed time* and *calculated time* -- the main underlying principle of ASC.

"Although calculated time has become the standard convention, it may not be the convention used in Scripture ...

"Observed time requires less information than calculated time. Anyone can look at a clock when an astronomical event occurs and record the time. However, to obtain the calculated time, one must already know the observed time, as well as the distance to the object and the speed of light. The distance to

an object is often unknown, or not known very accurately. This is why astronomers record events according to the observed time convention. Yet, astrophysical calculations are almost always done in calculated time. Each convention is useful for certain purposes. We now ask a critical question: Which definition of time does God use in *Genesis 1:14-19* when He creates the stars? Are the stars created on the fourth day—observed time, or the fourth day—calculated time?

"Observed time is always useful, but for calculated time to be meaningful we must know the distance to the object and the speed of light. Did the ancient Hebrews know the speed of light accurately? They probably did not. Did they know the distance to the stars? Again, they probably did not. In fact, only in modern times has calculated time become meaningful; we have only recently known the speed of light and the distance to the stars with any accuracy. So the question now takes on a different form: Would God have used a definition of time that would only become meaningful thousands of years later? If God's definition of time on Day 4 of Genesis is calculated time, then it would have been useless for ages. It would have been incomprehensible to all humanity for thousands of years until technology had developed to the level where we could measure the speed of light and the distance to the stars ...


"Thus it seems logical that God's definition of time would be observed time. This definition has always been meaningful and practical; it would have been understood by the ancient Hebrews, and is still meaningful today. God would want His words in Genesis to be understood by everyone throughout time. Moreover, if God had created the stars on Day 4 according to calculated time, Adam and Eve would have seen no stars in the night sky for over four years! The stars would appear to 'blink on' one at a time, year after year. Adam and Eve would have had the impression that God was *still creating!* This would be deceptive, so we conclude that God created the stars on Day 4—observed time.

"We now understand that the Bible must record events according to the observed time definition. This means ... that the stars were 'really' created on Day 4, and their light reached Earth instantly [so not a naturalistic mechanism]. This is exactly the impression we get from a straightforward reading of the text, and it seems quite consistent with the nature of God."<sup>1</sup>

### SYNCHRONY CONVENTIONS

Dr. Jason Lisle, an Evangelical Christian with M.S and Ph.D. degrees in Astrophysics from the University of Colorado in Boulder, has had a great interest in creation cosmology and relativity theory. Over the past

1. Newton, Robert, *Distant Starlight and Genesis: Conventions of Time Measurement*, *Technical Journal TJ* [Now called *Journal of Creation*], (2001) 15(1):80-85. <https://answersingenesis.org/astronomy/starlight/distant-starlight-and-genesis-conventions-of-time-measurement/>



20 years he had proposed and defended a creationist model of the Universe that uses observed time by employing an Anisotropic Synchrony Convention (ASC) instead of Einstein's Synchrony Convention (ESC) in the equations of Einstein's relativity theory. Employing this convention, which is like using a different set of coordinates but leaving all the laws and relationships of physics unaltered, he has produced an ASC Model which provides an elegant and simple solution to the distant starlight *travel-time problem* and supports a Biblical model of a young Universe. We will now examine his theory from both his and Dr. John Hartnett's points of view, which, I believe are quite valuable to us as Orthodox Christians in approaching cosmology in an integrated scientific and Biblical manner.

#### LISLE'S ANISOTROPIC SYNCHRONY CONVENTION (ASC)<sup>2</sup>

"The age of the Universe is a point of dispute between the *Bible* and the opinion of the majority of astronomers today. The *Bible* implicitly teaches us about the age of the Universe. In other words, it gives us sufficient information so that we can compute approximately how long ago God created the Universe. The *Bible* teaches that the entire universe was created in six earth rotation days (*Exodus 20:11*<sup>3</sup>). Furthermore, the *Bible* provides the age differences between parents and descendants when listing certain genealogies. From these kinds of biblical references we know that the elapsed time between Adam and the birth of Christ was roughly 4,000 [LXX 5540] years.<sup>4</sup> From other historical records, we know that Christ was born roughly 2,000 years ago. Since Adam was created on the 6th day of the creation week, we can conclude that the earth, the entire Universe, and everything in it were created approximately 6,000 years ago."<sup>5</sup>

"*Genesis* itself may suggest a simple answer to distant starlight. In *Genesis 1:14-18* God tells us that the stars were created on the fourth day to give light upon the earth. This text also seems to strongly suggest that the stars fulfilled their purpose immediately (*and it was so*). Therefore, it would seem that the light emitted by the stars reached earth instantaneously, or nearly so. This suggests a *synchrony convention*: a procedure for synchronizing clocks separated by a distance."<sup>6</sup>

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2. Lisle, Jason P., *Anisotropic Synchrony Convention—A Solution to the Distant Starlight Problem*, *Answers Research Journal* (2010), pp. 191-207. <https://answersingenesis.org/astronomy/starlight/anisotropic-synchrony-convention-distant-starlight-problem/>

3. *Exodus 20:11 KJV* For in six days the LORD made heaven and earth, the sea, and all that in them is, and rested the seventh day; wherefore the LORD blessed the sabbath day and hallowed it.

4. Lisle's chronology follows from the *Hebrew Masoretic Text (MT)*. The Greek Septuagint *Lxx* chronology adds an additional 1366 years from Adam to Abraham plus an additional 215 years for the Egyptian sojourn, minus 40 years for the dating of Solomon's Temple compared to the *MT* -- thus placing creation about 1540 years earlier, approximately 7565 years ago. [To be discussed in a future article.]

5. Lisle, Jason P., *Taking Back Astronomy* (2006) Master Books, Green Forest, AK, pp. 48-50.

6. Lisle, 2010, p. 193.

"The clear biblical teaching therefore is that everything in the Universe is a few thousand years old. Since light travels a distance of one light year (about 6 trillion miles or 9 trillion kilometers) in one year, it would seem that we should only be able to see objects within a radius of 6,000 light years. Objects beyond that distance should not be visible, since presumably their light has not yet reached us. Yet, paradoxically, we can see galaxies whose distances have been measured to be many *billions* of light years away. This apparent mystery has been often addressed in creation literature as the *distant starlight problem*."<sup>7</sup>

"The fact that the Universe is very big and also old (by secular standards) is therefore not logically useful as a criticism against the *Bible* when the favored alternative also has a light travel-time problem."<sup>8</sup>

"Two events are said to be '*simultaneous*' if they both happen at the same time. When two events are separated by some distance and we wish to know whether they are simultaneous, we must first establish a system of measuring time at various locations. In particular, we must make certain that any clocks we are using to measure time at the two locations are synchronized. Thus, we must develop a procedure for synchronizing clocks separated by a distance. This turns out to be far more complicated than people might assume at first. Yet, we will find that the correct synchrony convention eliminates the distant starlight problem. Starlight from the most distant galaxy can reach earth on the fourth day of the Creation Week when the correct relativistic synchrony convention is employed ...

"The relativity of simultaneity is rarely discussed in creation-based literature. And yet it is crucial to the construction of biblically-based cosmological models. Let us suppose for the sake of argument that the description of the creation of the Universe in *Genesis* is using *Einstein's Synchronization Convention*; that is, the way God describes the timing of events is the same system astronomers and physicists use today. Most creationists implicitly assume this. Since the creation of the celestial objects (the lights of the heavens) occurs on the fourth day, all stars were created simultaneously, or nearly so (within 24 hours). But we've just seen that what is considered "simultaneous" is relative to the observer's reference frame. Since God is omnipresent, what reference frame would He choose? The reference frame of the earth is the obvious choice, since the days of creation are described in terms of earth rotations (*the evening and the morning were the Xth day*). Moreover, since the Bible is written for human beings, it stands to reason that the planet on which all humans live would be the reference frame God would use for all time-stamping.


"However, the reference frame of the earth changes throughout the year as the earth orbits the sun. Its direction of velocity is constantly changing. So, if the creation of the stars is simultaneous relative to earth on Day Four (as measured by Einstein synchronization), then it *cannot* be simultaneous relative to earth only sixth months later (when the earth is on the opposite side of the sun, and moving in the opposite direction). In fact, the spread of time becomes enormous when we consider the most distant galaxies.

"For example, consider a galaxy 13 billion light years away. And imagine that it is located in the opposite direction

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7. Lisle, 2006, pp. 48-50.

8. Lisle, 2010, pp. 191.



from that the earth was moving during the Creation Week (in its orbit around the sun). Then if this galaxy is created on the fourth day according to the Einstein synchrony convention, we find by the Lorentz transformation that six months later (when the earth is moving toward this galaxy) it would have been created 2.6 million years before the earth! Perhaps even more strangely, if we consider a galaxy in the opposite direction (such that earth is moving toward it at its creation), also 13 billion light years away and created on Day Four, the Lorentz transformation tells us that this galaxy from earth's reference frame six months later will not have been created yet! Its creation will be 2.6 million years in the future.”<sup>9</sup>

In order to resolve the equations of *special relativity* Einstein made a conscious choice of clock synchronization (called the *Einstein Synchrony Convention* or ESC)<sup>10</sup>, which is currently used by virtually all physicists and astrophysicists when they apply Einstein's complex equations in *general* and *special relativity* theory. Dr. Jason Lisle has chosen a different timing convention, the Anisotropic Synchrony Convention (or ASC) for his theory of biblical creation. Under that convention celestial events occur when we see them happen. Under the Einstein convention light travels at the constant two-way speed of light  $c$  and takes billions of years to get from the distant reaches of the universe. However, **under ASC the light arrives instantly!** How is that possible? Is it believable? Let's see how Dr. Hartnett explains it:

#### DR. HARTNETT'S EXPLANATION OF ASC (FROM 2015)

“The choice of a timing convention in no way affects any underlying physics. The physics is always the same no matter what convention one may choose. Einstein chose a value of the clock synchronization parameter, known as the Reichenbach synchronization parameter ( $\epsilon$ ), in his equations for Special Relativity that *defines* the one-way speed of light as being equal to the two-way speed. Any value for the parameter  $\epsilon$  between 0 and 1 may be chosen. Nature itself does not choose, nor impose any requirement on its value within this domain. The parameter represents our free choice of a timing convention. Hence we are free to choose any value of the Reichenbach synchronization parameter  $\epsilon$ , provided it is between 0 and 1. Einstein chose  $\epsilon = \frac{1}{2}$  (ESC) and Lisle chose  $\epsilon = 1$  (ASC). Choosing a value for this parameter is in

9. Lisle, 2010, pp. 193-197.

10. How is Einstein synchronization special? It is the only synchronization in which the one-way speed of light is isotropic and homogeneous in any reference frame. Non-Einstein synchronizations have the disadvantage that they necessarily introduce an apparently anisotropic one-way speed of light (the above example of night-sky synchronization does this too!), although the two-way speed always remains isotropic and homogeneous. So if we want a formalism in which the postulate of the speed of light is necessarily manifest in the one-way speed, we are stuck with Einstein synchronization. If we relax this requirement to allow an apparent ... “symmetry breaking” in the one-way speed, while keeping the two-way speed manifestly invariant, other classes of compatible synchronizations become available. <https://physics.stackexchange.com/questions/257665/reference-%20for-reichenbach-synchronisation-and-non-standard-special-%20relativity>

no way dissimilar to a choice of a different coordinate system. And regardless of which coordinate system one may choose the underlying physics is unaffected. What is different is only how we represent the physics in the different coordinate system. The equations of motion may be more complex in one coordinate system than in another but in all cases the physics is unaffected.

“Thus no amount of appealing to Maxwell's equations (derived pre-Einstein) or any other well-known physics can refute the notion of free choice for the one-way speed of light, or more precisely, the conventionality thesis of distant simultaneity.

“In most cases where this has been attempted it has been largely based on *petitio principia* (or *begging the question*, that is, assuming in the premise what you are trying to prove). Often the assumption is very subtle. But in all such cases, in the premise the speed of light is implicitly assumed to be isotropic and subsequently used to ‘prove’ that the one-way speed of light is equal to the isotropic (or two-way) speed of light.

“Maxwell's equations only predict an isotropic speed of light when the chosen value of the Reichenbach synchronization parameter  $\epsilon = \frac{1}{2}$ . The generalized Maxwell equations allow for non-isotropic propagation of light where  $\epsilon \neq \frac{1}{2}$ . Therefore under the ASC with  $\epsilon = 1$  the non-isotropic propagation of light is permitted by Maxwell's equations.

“And some argue that the one-way speed of light being different in opposite propagation directions is absurd. Nature just cannot be that way. They base that view on symmetry arguments, saying light must travel the same speed in all directions because that is the way the universe must be. This misses the whole point of the conventionality thesis. Because it is empirically impossible to measure the one-way speed of light, due to the fact that distant clocks cannot be synchronized except by sending a light signal, then one cannot say anything meaningful about the one-way speed.

“In 1925 Reichenbach wrote: ‘Thus we are faced with a circular argument. To determine the simultaneity of distant events we need to know a velocity and to measure a velocity we require knowledge of the simultaneity of distant events. The occurrence of this circularity proves that simultaneity is not a matter of knowledge, *but of a coordinate definition*, since the logical circle shows that a knowledge of simultaneity is impossible in principle [emphasis in italics is present in Reichenbach's original article].”<sup>11</sup>

“Now, two clocks are synchronized under ESC by assuming the speed of light is a finite constant and the same in all directions. When we measure the speed of light using a clock this convention means we always measure the 2-way speed of light.


“This is done by using a single clock and reflecting a light beam off a mirror. How about adding another clock and measuring the 1-way speed?

“How would you send back to the originating clock the time when the light signal arrived at the receiver clock to calculate the travel time? You need to send back another light signal and that then makes it a 2-way measurement.

“For this reason, the 1-way speed of light has never been measured. In fact physics tells us it is impossible to do so. So we are free to choose it. Therefore under the ASC light from

11. Hartnett, J, *New Cosmologies Converge on the ASC-Model*, *Journal of Creation* (2019), 33:71-77. [https://dl0.creation.com/articles/p130/c13059/j33\\_1\\_71-77.pdf](https://dl0.creation.com/articles/p130/c13059/j33_1_71-77.pdf)





the distant cosmos **arrives instantly**, even though under the ESC it takes billions of years. I'll repeat this, under the ASC—a timing convention—all light from the cosmos instantly arrives at the earth, regardless of distance.

“Lisle suggested that the ASC is language of the Bible. Events are time-stamped when they are observed. His model is that the Universe was created so that light from all stars and galaxies arrived for the first time on Day 4 of Creation Week about 6000 [Lxx 7565] years ago.

“Under the ESC that light travelled for millions to billions of years from the distant galaxies to Earth. It all arrived for the first time 3 days after creation of the earth. But under ASC, it could have been observed (by any hypothetical observer) on 4th day of creation. That means all stars and galaxies were created on 4th day. Therefore, there is no light travel time at all.

“I have used Lisle’s timing convention in a new model of a static or quasi-static universe [2015].<sup>12</sup> What we see is very close to a universe only 6000 [Lxx 7565] years old, a mature creation. Just like our sun was created mature, fully operating, so God created the stars and galaxies in the cosmos similarly.

“Most of the galaxies show only redshifts in their light. This has been the evidence for Hubble expansion of the universe. In my new [2015] model “tired light” is the cause of galactic redshifts. Hubble himself, for decades after his discovery, was not so sure about the expanding universe explanation.

“Hubble wrote: ‘... the possibility that red-shift may be due to some other cause, connected with the long time or distance involved in the passage of the light from the nebula to observer, should not be prematurely neglected.’<sup>13</sup>

“In my model, all light left all galaxies about 6000 years ago as measured by earth clocks. All light arrived at Earth for the first time on Day 4 of creation week. Even if it travelled for billions of years under the ESC traveling at constant speed of light *c*, under the ASC it arrived instantly. No travel time. Remember: This is just a timing convention, nothing more. Events are time-stamped when they are observed, or in this case when they could have been observed on Earth.

“The question to be asked is: Is the ASC the convention for timing events used in the Bible?

“Exodus 20:11 is the verse 6-day creationists test all models against. *For in six days the LORD made heaven and earth, the sea, and all that in them is, and rested the seventh day.*

“The ASC fits this because between the beginning of the fourth day and the end of the fourth day any hypothetical observer on Earth would have seen the creation of the heavenly bodies as they were created because during that day, not before, their light arrived for the first time. This was a normal 24-hour day. And the rest of the days were also normal 24-hour days.

“Ok, we have this equation: Distance = speed x time.

“Distances in the universe are truly large so in regards to the solution for the light-travel time problem distances are not the answer.

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12. Hartnett, John G., *A Biblical Creationist Cosmogony*, *Answers Research Journal* (2015) 8:13-20, <https://assets.answersingenesis.org/doc/articles/pdf-versions/arj/v8/creationist-cosmogony.pdf>

13. Hubble E and Tolman RC, *Two methods of investigating the nature of nebular red-shift*, *Astrophysical Journal*, (1935) 82:302-337.

“The speed of light, what we call the 2-way speed of light, the universal constant is constant, *c*, you can’t play around with that. So, speed is not the answer. And the one-way speed of light is not a physically measurable quantity. The nature of the universe is such that we can’t measure that. That is really a statement about timing conventions.

“That leaves **time as the only possibility. Time is not an absolute in the universe and it seems also neither is our choice of clock synchrony convention. We are free to choose.**

“A time dilation cosmology could provide the needed time for light to travel to earth in only 24 hours of earth time,<sup>14</sup> or it may be so simple that the Anisotropic Synchrony Convention (or ASC) is the language used in the Bible. If that is the case there never was a light-travel time problem.<sup>15</sup>

#### DR. JASON LISLE: OBSERVATIONAL PREDICTIONS AND CONFIRMATIONS OF THE ASC MODEL

“Since the ASC model has the stars being made on the fourth day of the Creation Week, and since light travel-time is zero under the selected synchrony convention, and since we have supposed that gravitational time dilation is negligible, it follows that the universe appears at all distances as it is now, having aged an equal amount everywhere. Therefore, when we look at any region of the universe, we are seeing it at an age of roughly 6,000 years [for the *MT (KJV)*, or around 7,565 years by the *Lxx (Brenton translation)* with the maximum textual uncertainties]. That being the case, we should expect to see indications of the youth of the universe (in contrast to billions of years) at all distances. We should expect to find processes that cannot be easily extrapolated into a billions-of-years hypothetical past, and which consequently place an upper limit on the age of the process that is far less than big bang models would predict. The ASC model predicts that such indicators will be found at all distances within the visible cosmos. It is noteworthy that we already have some confirmation of this.


“Consider blue stars. Blue, O-type, stars are the hottest and most luminous stars in the universe. Although they are more massive than their yellow and red counterparts, their high luminosity means that they use up their fuel much more quickly than other stars. The hottest blue stars cannot last more than a million years or so. Moreover, it is well known that spontaneous star formation is riddled with theoretical difficulties (overcoming internal gas pressure, angular momentum, and magnetic fields) and lacks any significant observational support. This is particularly problematic for blue stars since they have the greatest mass. If blue stars do not form, then their presence in any region of space suggests that that region was created in the recent past. Blue stars are ubiquitous in our galaxy, and are apparently in the most distant spiral galaxies as well. This is a strong confirmation of the ASC model. The fact that numerous blue stars exist at all distances is consistent with a universe that is thousands of years old at all distances as we now see it.

“Another example is spiral galaxies. It is well known that

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14. This was written in 2015. But 3 years later, in 2018, Hartnett realized that the physics of time-dilation couldn’t provide sufficient time. He then rejected his model and adopted Lisle’s ASC model.

15. Hartnett, John Gideon, *Starlight and Time: It is a Brick Wall for Biblical Creation?* *Bible Science Forum* (blog), Jul 31, 2015, <https://biblescienceforum.com/2015/07/31/starlight-and-time-is-it-a-brick-wall-for-biblical-creation/>



spiral galaxies rotate differentially, with the inner regions rotating significantly faster than the outer regions. Thus, if any spiral galaxy were more than 1 billion years old, its spiral structure should be so tightly wound that it would no longer be discernible. Yet this is not what we find. Spiral structure is easily visible in most face-on galaxies, indicating the youth of these galaxies regardless of their distance from the solar system.

“Secular astronomers have created auxiliary hypotheses to rescue their worldview from this evidence. For example, they suppose that some sort of density waves might trigger star formation in spiral patterns thereby continually creating new spiral structure as the old structure dissipates (Lin and Shu 1964). But such a hypothesis has a number of difficulties (the trigger mechanism, contrary observations like backward-wound spirals, etc.) and presupposes star formation (which has difficulties of its own). So the simplest explanation is that the galaxies are young.

“Indeed spiral galaxies nearby strongly resemble those found in the Hubble Deep Field—at the edge of our current knowledge of the universe. The spiral structure is clearly seen in both nearby and distant galaxies, suggesting that they are all roughly the same age as we see them now. This again confirms the ASC model. Even the amount of spiral wrapping seems to be about the same for nearby and very distant galaxies as we see them now—exactly as the ASC model predicts.

“The ASC model also makes some predictions that are as yet only partially confirmed. Since the model predicts that all regions of the universe should have aged only a few thousand years as we now see them, it follows that there should be evidence of youth in our own solar system as well as distant stellar systems. Creationists have already pointed out a number of such examples in the solar system. Comets, the internal heat of three of the Jovian planets,<sup>16</sup> and strong planetary magnetic fields are all things that cannot last billions of years and yet are found within our solar system. I am aware that secularists have their auxiliary hypotheses to explain these things from within their own worldview. Here I simply mean to show that within a creationist framework these lines of evidence confirm a young solar system.

“Of course, evidence of youth within our solar system does not confirm the ASC model over and above other *creation* models. But it does confirm the ASC model over and above secular models. But unlike some creation models, the ASC model *also* predicts that such things should exist at great distances within our galaxy, and even in the most distant galaxies in the universe. We have already seen indications of youth in other stellar systems.

“As one example, most astronomers would concede that ring systems (such as those surrounding Saturn) cannot last billions of years. Yet even now there is evidence that at least some extrasolar planets have such ring systems as well. *Fomalhaut b*, for example, is suspected to have a massive ring system based on its high brightness in visible wavelengths (Kalas et al. 2010). The planet’s brightness in infrared suggests a high temperature which is also indicative of youth (Kalas et al. 2010). Although *Fomalhaut b* is one of only a handful of extra-solar planets that have been directly imaged so that we have such brightness and temperature data, and although it is not a very distant world by cosmological

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16. Jupiter, Saturn, and Neptune have internal heat. Uranus does not.

standards, it at least suggests that other extra-solar planets will exhibit the same indications of youth that we find within our own solar system. Extra-solar planet research is still in its infancy. But the prospect of finding evidence of planetary youth (as the ASC model predicts) in other solar systems both within and beyond our galaxy is very exciting.”<sup>17</sup>

#### ADDITIONAL EVIDENCE FOR A YOUNG COSMOS

Creationist cosmologist Dr. Danny Faulkner has recently authored a paper (2019) critically evaluating 25 proposed astronomical arguments for a recent origin of the solar system,<sup>18</sup> and another paper with 23 more for a recent origin of the sun, the stars, and the galaxies<sup>19</sup> that biblical creationists have used -- some good and many that need discarding.

Those astronomical arguments that support a recent origin of the solar system include (1) lunar ghost craters; lunar recession (but needs more creation research and discussion), (2) the orbits of Phobos and Deimos around Mars; (3) the excess radiation of heat from Saturn, Jupiter, and Neptune; (4) volcanism on Io, the innermost Galilean satellite of Jupiter; (5) cryovolcanism on Saturn’s satellite Enceladus and geyser eruptions on Neptune’s satellite Triton (more research required); (6) hydrogen and methane in the atmosphere of Saturn’s satellite Titan; (7) the sparseness of craters on the surfaces of Pluto and Charon; (8) ring systems on all the Jovian planets (Jupiter, Neptune, and Uranus) which are very hard to visualize from earth; (9) the Poynting-Robertson effect (the failure of the gravitational removal of dust and small particles from around the sun and large planets indicates a young planet); (10) and the short life of comets. Thus, 10 out of 25 of these arguments are useful for supporting a young universe in discussions with naturalistic evolutionary cosmologists. [Dr. Faulkner chose not to discuss the strong magnetic fields of planets in favor of publishing a separate article (which he has yet to publish).]

Those astronomical arguments that are good for supporting a recent origin of the sun, stars, and the galaxies include (1) the faint young sun paradox and (2) persistence of spiral arms in galaxies -- so only 2 of 23. He did not discuss blue O-type stars in his paper.

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17. Lisle (2010).

18. Faulkner, Danny R., *An Evaluation of Astronomical Young-Age Determination Methods I: The Solar System*, *Answers Research Journal*, (2019.) 12:255-274. <https://answersingenesis.org/astronomy/age-of-the-universe/an-evaluation-of-astronomical-young-age-determination-methods-i-solar-system/>

19. Faulkner, Danny R., *An Evaluation of Astronomical Young-Age Determination Methods II: Solar, Stellar, Galactic, and Extragalactic*, *Answers Research Journal*, (2019) 12:329-349. <https://answersingenesis.org/astronomy/age-of-the-universe/evaluation-astronomical-young-age-determination-methods-solar-stellar-galactic-extragalactic/>



#### DR. LISLE'S CONCLUSIONS ON THE ASC MODEL:

“The distant starlight problem is resolved if we accept that *Genesis* is using the anisotropic synchrony convention (ASC) rather than the Einstein synchrony convention (ESC). The resolution is simple: under ASC, the one-way speed of light when directed toward earth is axiomatically infinite, even though the round-trip speed of light remains  $3 \times 10^8$  m/s. Thus, the light from stars that are created on the fourth day will naturally reach the earth essentially instantaneously.

“Moreover, we have seen that there are good reasons to suppose that the *Bible* does indeed use ASC. First, the fact that *Genesis* implies that the light from stars created on Day Four reached earth on that day (*and it was so*) naturally implies the ASC convention. Second, such a convention was the only one available to the ancient world. Thus, if the *Bible* really is designed to communicate truth to all people-groups at all times then ASC is the obvious choice. The *Einstein Synchrony Convention* was not in common use until the early twentieth century, and so it makes little sense for God to use such a convention in the Scriptures. Third, we have seen that the Einstein convention is heavily dependent on the observer's state of motion. Thus, events that are simultaneous in one velocity frame will be spread over millions of years in another. Even the earth's annual orbit would cause the Creation Week to become millions of years long. There is no hint of this in Scripture, thereby suggesting that the Bible does not use the Einstein convention. Indeed, the problem disappears when we use ASC.

“We have seen that synchrony conventions amount to a choice of coordinate system. They are stipulated on the basis of their usefulness. They are not a hypothesis; they are not something that can be ‘tested’ for truthfulness. Stipulating a synchrony convention is mathematically equivalent to stipulating the one-way speed of light. Though it may seem counter-intuitive to those unfamiliar with Relativity, the one-way speed of light cannot be measured without first stipulating it either explicitly or implicitly. In the same way that we cannot test whether the English system or the metric system is “correct,” so we cannot test the one-way speed of light. It is chosen as a matter of convention.

“There are an infinite number of possible synchrony conventions. However, two of them turn out to be extremely useful. The Einstein (standard) synchrony convention has the advantage that two observers with the same *velocity* will agree on which events are simultaneous (regardless of position). The anisotropic synchrony convention has the advantage that two observers with the same *position* will agree on which events are simultaneous (regardless of velocity). Since Relativity is primarily concerned with velocity frames, it is normally formulated according to the Einstein convention in which the equations take on their simplest form due to symmetry.

“However, Relativity can be (and has been) formulated in non-Einstein synchrony conventions (Winnie 1970a, b) ...

“The potential objections to ASC covered above are found to be unwarranted. Most of them deny the conventionality thesis. Many of them beg the question by presupposing that only Einstein synchronization is acceptable, and then arguing that alternatives are unacceptable. Moreover, even if the conventionality thesis were refuted, the critic would still have to show that the Bible cannot be using ASC as a convenient phenomenological system. It is my judgment, however, that

the case for the conventionality thesis is quite strong, and cannot be refuted without begging the question.

“By merely accepting the ASC as a convention, the distant starlight problem is resolved. However, by making a few additional, reasonable assumptions, we are able to produce a basic model of cosmology—the ASC model. This model makes falsifiable predictions, many of which have already been confirmed. The ASC model implies that all regions of the universe have aged only a few thousand years *as we now see them*. This prediction is contrary to most other starlight models, including time-dilation models. Yet, the prediction has some observational support, such as the detection of blue stars and spiral galaxies at all distances.

“We note that only the ASC model accounts for distant starlight and other earthward-directed phenomena that move at nearly the speed of light (such as neutrinos). It has been suggested that other celestial phenomena require billions of years: collisions of galaxies, jets of material from active galactic nuclei (AGNs), etc. However, I do not believe this is so. It seems to me that the mature creation argument works quite well on distributions of *matter*. Unlike light, the supernatural creation of matter in a specific configuration does not undermine any precondition of intelligibility; nor do we have biblical information that would be contrary to the idea that God may have created the matter in the universe very close to its present location. So, we should consider the possibility that galaxies currently in collision may have been created in collision. There is no reason to assume that they must have come from a previous state ...

“Starlight is different because we do have some Scriptural information about its origin. Namely, it really did come from the stars (Genesis 1:15). And our sensory experiences are basically reliable. Therefore events we see happening in space really have happened, which would seem to refute the light-in-transit model. Yet, starlight is not a challenge for a young universe when we consider the anisotropic synchrony convention. Taking all the Scriptural information into account, ASC seems to be implied by the Bible, and naturally solves the starlight problem by reducing inward-directed light-travel-time to zero. Moreover, ASC forms the basis for a new young-universe cosmological model which has made successful predictions.”<sup>20</sup>

To finish off our discussions of creationist cosmology, there are a couple of other recent young earth creation models. The one proposed by Tenev Baumgardner, and Horstemeyer in 2018<sup>21</sup> is in reality, according to Dr. John Hartnett, only a slight refinement in clarity on Lisle's ASC model<sup>22</sup> So we will not spend any time on it.

#### DR. PHILLIP R. DENNIS' YOUNG EARTH COSMOLOGY

20. Lisle, 2010.

21. Tenev, T.G., Baumgardner, J., and Horstemeyer, M.F., *A solution for the distant starlight problem using creation time coordinates*. In Whitmore, J.H., ed., *Proceedings of the Eighth International Conference on Creationism*, Pittsburgh, Pennsylvania: Creation Science Fellowship, 2018, pp. 82-94. [https://digitalcommons.cedarville.edu/cgi/viewcontent.cgi?article=1017&context=icc\\_proceedings](https://digitalcommons.cedarville.edu/cgi/viewcontent.cgi?article=1017&context=icc_proceedings)

22. Hartnett, J., *New Cosmologies Converge on the ASC-Model*, *Bible Science Forum* (blog), Nov 13, 2018, <https://biblescienceforum.com/2018/11/13/new-cosmologies-converge-on-the-asc-model>



However, the second model, proposed by Dr. Dennis, uses a different approach for construction of a preliminary young earth creationist (YEC) model -- it uses inhomogeneous solutions of the Einstein field equations (EFE).<sup>23</sup> Why? Because he believes, as do many physicists, that homogeneous cosmological models like the standard homogeneous isotropic Friedmann-Lemaître-Robertson-Walker (FLRW) model, which rely on the *cosmological principle*, are an over simplification of the physical universe and are best viewed as first order approximations of the Universe -- not its reality.<sup>24</sup>

Secondly, sky survey observational evidence of large scale structures in the universe has revealed significant inhomogeneities such as galaxy filaments, *great walls* such as the Sloan Great Wall superclusters (see Figure 1 below), large voids, and the appearance of concentric shells in the distribution of matter, which contradict both the *cosmological principles* of homogeneity and isotropism, as well as the Copernican principle. That should be the starting point.

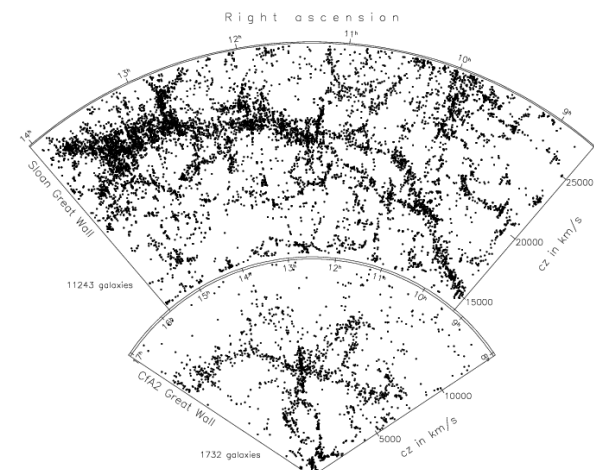


FIGURE 1. SLOAN DIGITAL SKY SURVEY MAP SHOWING THE GREAT WALL (ABOVE) AND THE CTA2 GREAT WALL SUPERCLUSTERS (BELOW)

The general solution for the Einstein field equations (EFE) for an inhomogeneous spherically symmetric space time model were initially developed in detail by Tolman (1934) and Bondi (1947). These so-called *Lemaître-Tolman* (L-T)/*Lemaître-Tolman-Bondi* (LTB) models are based on the time evolution of a spherically symmetric (but otherwise non-homogeneous) dust cloud (under no pressure) in co-moving coordinates.

Each spherical shell of a fixed radius can evolve independently from the rest of the matter in the universe outside of it. Moreover, the universe could have an inhomogeneous big bang, where the universe could come into being at different times at different points, or many simultaneous points. Rejecting the uniformitarian assumption of extrapolating cosmological data backwards to a past creation, this metric allows extrapolating only thousands of years near the earth and billions of years at remote distances.

Dr. Dennis recognizes that EFE solutions depend upon the selection of specific initial conditions. Dr. Dennis chose his according to Biblical parameters. In so doing, he claims to have solved the distant light time travel problem within creation week and to have accounted for distant redshift. However, he didn't address the cosmic background radiation (CMBR). Knowing that his theory was preliminary, he was hoping that others would develop more precise models that would better fit observational data. Unfortunately, previous LTB inhomogeneous<sup>25</sup> or anisotropic<sup>26</sup> models have not performed as well as the concordance ( $\Lambda$ CDM) lambda dark cold matter models in matching certain observational astronomical data. So it remains to be seen if Dennis' approach with his L-T/LTB type of model and starting assumptions will hold up to rigorous testing against observational data. Will the time dilation be sufficient in Dennis' model, or will it fail as have the other time dilation theories, which philosophically, are unfortunately still naturalistic evolutionary nebular accretion models.

Regarding these more recent creation cosmology theories, Dr. John Hartnett concludes:

"But just because we observe a 'mature' galaxy or star does not imply that it evolved from some simpler primordial form. The Genesis account does not indicate such a thing. What it does indicate is that all stars, and by extension galaxies, were created on Day 4. Thus they were created *mature*. None are more than 6 thousand years old ... There is no light travel time from distant stars and so we observe the 'present' state of the universe at the moment we see it" [as Dr. Jason Lisle has championed in his observed time based *Anisotropic Synchrony Convention* model].<sup>27</sup>

#### SUMMARY AND CONCLUSIONS:

In this series of articles we have looked at Biblical

23. Dennis, Phillip W., *Consistent Young Earth Relativistic Cosmology*, in Whitmore, J.H., ed., *Proceedings of the Eighth International Conference on Creationism*, Pittsburgh, Pennsylvania: Creation Science Fellowship, 2018, pp. 8:14 -35, [https://digitalcommons.cedarville.edu/cgi/viewcontent.cgi?article=1043&context=icc\\_proceedings](https://digitalcommons.cedarville.edu/cgi/viewcontent.cgi?article=1043&context=icc_proceedings)

24. Garcia-Bellido, Juan, and Haugølle, Troels, *Confronting Lemaître-Tolman-Bondi Models with Observational Cosmology*, *Journal of Cosmology and Astroparticle Physics*, (2008), 2008:4, pp. 1-4 o28, <http://arxiv-export-lb.library.cornell.edu/pdf/0802.1523>.

25. Zumalacárregui, Miguel, García-Bellido, Juan, Ruiz-Lapuente, Pilar, *Tension in the Void: Cosmic Rulers Strain Inhomogeneous Cosmologies*, (2012), pdf at <https://www.academia.edu/11506373/>

26. Saadeh, Daniela, Feeney, Stephen M., Pontzen Andrew, Peiris, Hiranya V., and McEwen, Jason D., *How Isotropic is the Universe?*, *Physical Review Letters*, (2016), 117.131302, Sep 23 pp. 5, <https://discovery.ucl.ac.uk/id/eprint/1493640/1/>

27. Hartnett, J, *New Cosmologies Converge on the ASC-Model*, *Journal of Creation* (2019), 33:71-77. [https://dl0.creation.com/articles/p130/c13059/j33\\_1\\_71-77.pdf](https://dl0.creation.com/articles/p130/c13059/j33_1_71-77.pdf)



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creation, considered observational astronomy from the ancient Greeks to the present age, and considered a variety of cosmological principles and models. As in the ancient world, so it is now, as well, that philosophical ideas and mathematical models have captured the imagination of those fascinated with our Universe. In the last twenty years of *precision cosmology* advances in technology have allowed us to collect a wealth of data about the Universe which has spurred naturalistic uniformitarian scientists to propose even more detailed, intricate, and speculative theories and mechanisms for creation of the Universe which go far beyond current known physics. By virtue of the *ad hoc* fudge-factors of *dark matter*, *dark energy*, and *inflation*, they have proposed a serious and workable  $\Lambda$ CDM concordance model. However, the fundamental question always remains -- how well does their theory stack up against reality?

Indeed, one serious academic scientist believes these *ad hoc* fudge factors may indeed be illusions and that gravity may work differently from how Einstein envisioned it. Dr. Celia Escamilla-Rivera, Head of the Department of Gravitation and Field Theory at the National Autonomous University of Mexico, is championing *teleparallel gravity* in which gravity doesn't just curve space, but twists it, like a tornado or vortex, especially around black holes.<sup>28</sup> She hopes that the recently launched James Webb Space Telescope will be able to confirm evidence of *teleparallel gravity* and begin to challenge Einstein's Theory of General

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28. Lewton, T, *In Search of Cracks in Albert Einstein's Theory of Gravity: Celia Escamilla-River is combining large data sets with supercomputers to test general relativity against its little-known competitors*, *Quantamagazine*, (2022) Feb 23, <https://www.quantamagazine.org/in-mexico-cosmologist-hunts-for-cracks-in-einsteins-gravity-theory-20220223/>

Relativity, and replace the  $\Lambda$ CDM model with a *teleparallel gravity*-based, naturalistic, uniformitarian, evolutionary, nebular accretion model of her own!. Similarly, "newborn star systems" imaged by the Atacama Large Array telescope in Chile, are forcing a near-total rewrite of decades old theory of how planets are made and how our solar system came to be according to today's leading mainstream astronomers.<sup>29</sup>

We have also shown in these articles that the latest efforts of Drs. Faulkner, Lisle, and Hartnett have yielded serious and testable young earth cosmology models which agree theologically and chronologically with *Scripture*. More importantly, they leave the ultimate mechanism of the creation of the heavens, galaxies, stars, and planets in God's hands as a mystery described by Him (in *Job 9:10*) as *past finding out*, *unsearchable*, and replete with *wonders without number*. Their work supports a very credible and scientific origin of the cosmos from a Biblical worldview that challenges the mainstream inflationary nebular accretion models taught in our public schools, colleges, and universities. Thus, as Orthodox Christians, we can continue to gaze heavenward and praise and glorify our Lord and God for His creative and artistic genius in all that He has created and made!!! We can also challenge our Orthodox physicists and cosmologists to further develop and champion such cosmological models that give our God and Creator all the credit and glory He deserves!!! [An annotated Cosmology Bibliography is also available at our church website below under THE GOOD WORD 2.] ❖ ❖ ❖

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29. Boyle, Rebecca, *How Are Planets Made? New Theories are Taking Shape*, *Quantamagazine*, 2022, June 9, [https://www.quantamagazine.org/how-are-planets-made-new-theories-are-taking-shape-20220609/?mc\\_cid=ba71006639&mc\\_eid=7fa1bb1396](https://www.quantamagazine.org/how-are-planets-made-new-theories-are-taking-shape-20220609/?mc_cid=ba71006639&mc_eid=7fa1bb1396)