

"He is the One who rendered the Sun radiant, and the Moon a light, and He designed its phases that you may learn to count the years and to CALCULATE... God did not create all this, except for a specific purpose..." (The Holy Qur'an, Chapter 10, Verse 5)

SCIENCE

1 Scientific Verse in this Section

WHAT IS SPEED 'C' ?



A NEW ASTRONOMICAL QUR'ANIC METHOD FOR THE DETERMINATION OF THE GREATEST SPEED 'C'



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Abstract:

The greatest speed C , denoting the velocity of light in vacuum, is hinted at in two glorious Quranic verses relating this fundamental universal content C with the motion of the Earth-Moon system. A new relativistic interpretation of this Quranic relation gives an extremely marvelous agreement with the accepted international value.

Qur'an says : $C=299792.5$ km/s .. and now the science says the same too.

This astonishing result emphasizes the unity of the physical world, the validity of the special theory of relativity and the authenticity of the Glorious Qur'an for unbelievers.

Introduction:

The velocity of light C in vacuum belongs to a small group of the fundamental constants; however, it occupies an outstanding position even within this group.
From the ancient Greeks down to the Middle ages, the speed of light was believed to be

infinite. Aristotle believed that light propagates instantly!. In the eleventh century, an Arabic scientist Alhassan suggests that light travels at a finite speed. Galileo (1600) tried this speed but he failed saying that light is extraordinarily rapid (1). Roemer (1676) was the first measuring C using the eclipses of the Jovian satellite Io. He obtained an inaccurate value of C (215000 km/s) because the diameter of the earth's orbit was not known exactly.

According to the US National Bureau of Standards(3):

$$C = 299792.4574 + 0.0011 \text{ km/}$$

and according to the British National Physical Laboratory:

$$C = 299792.4590 + 0.0008 \text{ km/s}$$

A basically new definition of the meter was accepted in October 1983 at the 17th General Conference on Measures and Weights(3):

"The meter is the length of the path traveled by light in vacuum during a time interval of $1/299792458$ of a second".

The Fixation of the value of C after the formation of the new definition of the meter does not mean yet the end of the story of this fundamental constant C. There are numerous other questions dealing with the relation between this multifarious, enigmatic constant C and the theory of Relativity.

Recalling the second postulate of the special theory of relativity declared by Albert Einstein (1905):

"The velocity C of light in vacuum is the same in all inertial frames of reference in all directions and depend neither on the velocity of the source nor on the velocity of the observer".



Pauli(4) (1958) said that the data on binary stars allowed us to consider this postulate of the constancy of the velocity of light to be almost certainly correct.

This validity condition of the second postulate of special relativity is considered in the present work because the constancy of the velocity C needs absolute space (vacuum). To attain vacuum in the Einstein's sense of this word. it is not: sufficient just to eliminate from a volume of space every atom, molecule and particle, it is necessary also to get rid of the

gravitational field. Therefore we have screened out the effect of the solar gravitational field on the geocentric orbital motion of the moon, which is considered here, according to the applied Quranic equation; as a standard measure reference for evaluating the greatest cosmic speed described in the Holy Quranic verses.



Lunar Orbital Motion described in Qur'an

The ARAB people use the lunar system in their calculation of time.

 *"GOD is the ONE who made the sun a shining glory and the moon a light and for her ordained mansions, so that you might know the number of years and the reckoning"* 

(The Holy Qur'an, Chapter 10, Verse 5)

The lunar year is twelve months, the month is defined recently as the time of one revolution of the moon in its orbit around the earth. God hints at such orbit in the Qur'an:

 *"GOD is the ONE who created the night, the day, the sun, and the moon. Each one is traveling in an orbit with its own motion"* 

(The Holy Qur'an, Chapter 21, Verse 33)

Here an essential scientific fact is clearly stated, namely, the existence of the earth's, sun's and moon's orbits; besides, a reference is made to the traveling of these celestial bodies in space with their own motion!

A new concept had therefore been established in the Qur'an, hundreds of years before it was discovered by modern science(6-7)

The time between consecutive new moons is 29.53 days and is called the synodic month. During this time, however, the earth, and consequently the moon's orbit, have traveled some way around the sun, so the position of the moon against the background of stars is different. 'The time for the moon to return to the same position in the sky as viewed from earth is called the sidereal month (27.32 days) which represents the actual real net time of one

revolution in the moon's orbit. This orbit is almost circular having an average radius
R=384264km.

Referring to the **Quranic verse (10:5)**, we notice that it discriminates between the apparent synodic period for knowing the number of years and the real sidereal period for reckoning in scientific calculations. These two systems of measuring time are now given in the text books of Astronomy as indicated (1₁) in table 2:

Table (2) Lunar month and terrestrial: day

Period	Sidereal	Synodic
Lunar Month T	27.321661 days = 655.71986 hours	29.53059 days
Terrestrial day t	23 h, 56 min 4.0906 sec = 86164.0906 sec	24 hours = 86400 sec

The aim of this work is to determine the value of the greatest speed mentioned in the following relativistic Quranic verses. In these verses the sidereal system should be used for both the lunar month and the terrestrial day as accurate measured periods (with respect to a distant apparently fixed star).

 **A NEW RELATION IN THE EARTH-MOON SYSTEM** 



The length of the moons' orbit L and the time t of one terrestrial day are correlated in a marvelous Quranic verse which describes a universal constant velocity of a certain cosmic affair as follows:

"GOD rules the cosmic affair from the heavens to the earth. Then this affair travels, to Him (i.e. through the whole universe) in one day, where the measure is one thousand years of your



(The Holy Qur'an, Chapter 32, Verse 5)

The Quranic expression "of your reckoning" leaves no doubt as to our understanding of the year as the lunar year.

The verse begins with a reference to a certain "cosmic affair" which GOD creates and commands. This affair travels, permanently through the whole universe between the heavens and the Earth, so speedily that it crosses in ONE DAY a maximum distance in space equivalent to that which the moon passes during ONE THOUSAND LUNAR YEAR (i.e. during 12000 Sidereal months). The question which pause.; itself now is: what could this cosmic affair be? And what is its greatest velocity as expressed in this Quranic equation?.

To answer this question the above Quranic verse has been understood** in terms of the following equation:

Distance crossed in vacuum by the universal cosmic affair in One sidereal day = length of 12000 revolutions of the moon around the earth.

$$\therefore C_t = 12000 L .$$

where:

C is the velocity of the cosmic affair,

It is the time interval of one terrestrial sidereal day defined as the time of one rotation of the earth. about its axis (relative to the stars). i.e. 23 hr, 56 min, 4.0906 sec = 86164.0906sec.)

L is the inertial distance which the moon covers in c-o revolution around the earth during one sidereal month i.e. L is the net length of the moon's orbit due to its own geocentric motion, without the interference of its spiral motion cause by the earth's revolution around the sun, i.e. _ is the lunar orbit length excluding the effect of the solar gravitational field on the measured value.

Let V is the measured average orbital velocity of the moon deduced from the average radius R of the lunar geocentric orbit as measured from an orbiting earth during its heliocentric motion)

$$\therefore V=2 \text{ Pi } *R/T.....(2)$$

substituting R = 384264 km and T = the sidereal lunar month = 655.71986 hr

$$\therefore V= (2 \times 3.1416 \times 384264) / 655.71986= 3682.07 \text{ km/hr}$$

This value is given in all text books of astronomy and is accepted by NASA.

The angle traveled by the earth moon system around the sun during one sidereal month of period 27.321661 days. If we take into consideration the period (365.25636 days) of one heliocentric revolution (1 year) of the earth-moon system (Fig.1).

$$@ = 27.321661 * 360 / 365.25636 = 26,92848$$

Thus @ is a characteristic constant of this system depending on uniform periods of the month and the year.

Since the presence of the sun changes the geometrical properties of space and time , we must screen out its gravitational effect on the earth moon system according to the validity condition of the second postulate of special relativity, i.e. we must only consider the lunar geocentric motion without the heliocentric motion of the earth-moon system. Thus a velocity component $V_O = V \cos O$ representing the net orbital velocity of the moon as shown in fig. (1) is introduced for calculating the net length L of the lunar orbit assuming a stationary earth.

$$\therefore L = V \cos @ T (3)$$

From equation (1) and (3) we get a new Quranic relation for the earth moon system:

$$Ct = 12000 V \cos @ T(4)$$

$$\therefore Ct = 12000 V \cos @ T/t(5)$$

***** Substituting the sidereal values of the periods t and T from table (2), the NASA value of the measured orbital lunar velocity $V = 3682.07 \text{ km/hr.}$, and the calculated value of $\cos @ = \cos 26.92848 = 0.89157$, we get the velocity of the cosmic affair from eq. 5 **AS****

EXPRESSED IN THE HOLY QUR'AN.



$$C = 12000 \times 3682.07 \times 0.89157 \times 655.71986 / 86164.0906$$

∴ $C = 299792.5$ km/s (Same the value what Qur'an says)

The international value of $C = 299792.458$ km/s we find an extremely marvelous agreement.

Thus we conclude that the cosmic affair, mentioned in the previous Quranic verse, is identical to LIGHT and all similar cosmic affairs traveling in vacuum with this maximum speed such as: all types of electro magnetic waves propagating between the heavens and the earth, the expected Gravitational waves spreading all over the universe, and all particles traveling in this cosmic greatest speed such as neutrinos.

It is very interesting to mention here the **second Quranic** verse that hints at the same relativistic Quranic equation in the earth-moon system: God Most High said:

 *"A day in the sight of thy Lord is like a thousand years of your reckoning"* 

(The Holy Qur'an, Chapter 22, Verse 47)

Thus both relativistic Quranic equations emphasize the obtained value of the greatest speed C and show that C is a permanent absolute constant.

CONCLUSION

It is both important and interesting to find a new astronomical relations between the radius of the lunar orbit R and the time t of one terrestrial day deduced according to a new relativistic interpretation of a cosmic Quranic verse alluding to the greatest universal speed identical to the velocity C of light in vacuum.

It is so awesome to find unity in the complex of phenomena, that at first sight appear to have nothing in common. This work proves the universality and constancy of the fundamental constant C as the Greatest Cosmic Speed and reveals the Glorious Qur'an as a Holy Book worth studying with meticulous analysis since its author is the CREATOR of the Universe.



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** This interpretation has been suggested by Zindani, A. and Dezhaf M. (1989), Organization of Scientific Miracles c_ Qur'an, Muslim World League Makka- kingdom of Saudi Arabian.



Maurice Bucaille, in "The Bible, The Qur'an and Modern Science"

On the subject of man, as well as the other topics mentioned earlier, it is not possible to find any corresponding data in the Bible. Furthermore the scientific errors contained in the Bible - such as those describing man's first appearance on earth, which, as we have seen, may be deduced from the Genealogies that figure in Genesis are not to be found in the Qur'an.



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