the general science journal

The Karlsson Peaks in the Quasar's Redshift Distribution as an Indication for Circling Light in a non-expanding Universe.

T. De Mees - thierrydemees @ pandora.be

Abstract

The quasar's redshift distribution is found to have a periodicities, according to K. G. Karlsson and others. Here, we analyse if these peaks could be an indication of circling light about the centre of the universe. We find that the Zwicky-Ashmore redshift theory provides an excellent evidence for circling light. We can confirm the age of the universe and define its radius and its mass with a good approximation.

Key words : *quasar, gravitation, redshift, Hubble constant, Ashmore.*
Method : *analytic.*

1. The Karlsson peaks in the quasar's redshift distribution.

Several scientists have investigated the distribution of quasar redshifts. Their investigations revealed a number of more or less significant peaks, whereof the well established peak at 1.96.

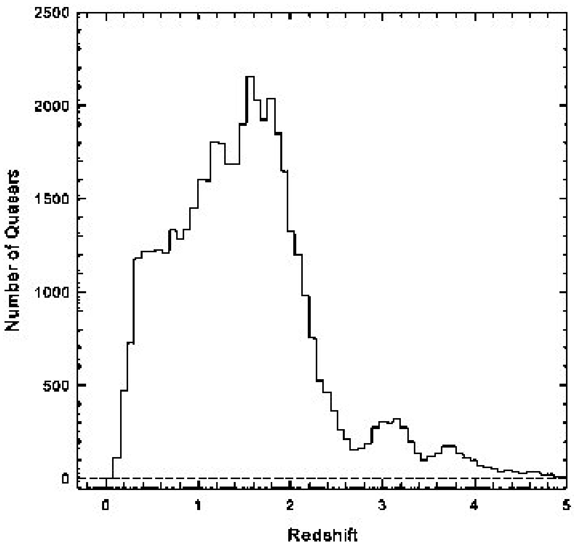

Fig. 1.1 : *Distribution of 46,400 quasars with redshifts below $z < 5$ (Schneider et al. 2005).*

In fig.1.1 is shown a survey of 46,400 quasars with their redshifts. A few peaks are seen around $z = 0.5$, 1.8 , 3.1 and 3.7 , but this is not what is looked for by Karlsson and others. The interesting thing is to find periodic peaks. With special selections between the quasars and special techniques, it is possible to find periodic peaks within this general distribution. We will discuss two different types of periodic peaks that are defined by a multiple of $\Delta(\ln(1+z))$. The origin from the latter comes from the theoretical equation of the redshift, which is given by $z = Hd/c$ (Zwicky [10]) or more generally (Ashmore [3]):

$$z = e^{Hd/c} - 1 \qquad (1.1)$$

wherein z is the redshift, H is the Hubble constant, d is the distance to the object and c the speed of light.

It is Ashmore who gave a physical meaning to equation (1.1).

In “Recoil Interaction Between Photons and The Electrons In The Plasma Of Intergalactic Space Leading To The Hubble Constant And CMB” he found and proved that :

$$H = 2\, n_e\, h\, r_e / m_e \qquad (1.2)$$

wherein h is Plank's constant, r_e and m_e are the radius and the mass of an electron, and n_e is the number of collisions between a light wave and an electron of a hydrogen atom in one $\mathbf{m}^3$ of space. The Ashmore equation gives a physical meaning to the Hubble constant by stating that the redshift is not mainly due to a Doppler effect, but is essentially due to the distance between the observer and the object. The number of hydrogen atoms is nearly 0.1 /m³ in our nearby space, but could even be up to 0.5 / m³ or more when some supernova are inspected (according to Ashmore's paper).

In reality, the redshift of quasars that we observe is probably essentially formed by a combination of the gyro-gravitational redshift (see my former paper: “Quasar's Gyro-gravity Behavior, Luminosity and Redshift.”) , the Doppler-effect and equation (1.1).
These equations include the exponential function, and it could be useful to investigate the periodicities of $\ln(1+z)$, which corresponds to the power of the exponential function.

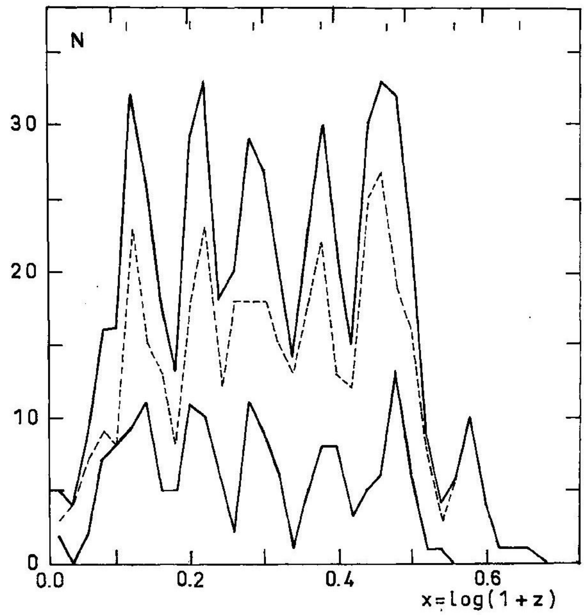

Fig. 1.2 : *Distribution of x = log(1+z) for the quasars and other compact sources. The lower solid line and the broken line corresponds to the distribution of objects with redshifts measured at two different surveys, and the upper solid line corresponds to the total sample.*

Peaks for the redshift z have been found by Karlsson and others at 1.96, 1.41, 0.96, 0.60, 0.30 and 0.06. Peaks at 2.63 and 3.46 are predicted by Karlsson. The above series of the redshift z gives for the natural logarithm $\ln(1+z)$ a step of 0.205 between the succeeding peaks. The peak of 0.06 is reported to not been caused by quasars only but mainly by other compact stellar objects.
In his paper “On the Existence of Significant Peaks in the Quasar Redshift Distribution” he describes the peaks of $\log(1+z)$ (this is a logarithm with base 10) as multiples of 0.089 for redshifts wherefore $0.06 < z < 0.6$ (see fig. 1.2).

The question is now: does the data from Karlsson mean anything important?

Since the distribution analyses start from the observed quantities of quasars, the first question that we could ask to ourselves is the quantities of quasars could have been created in packets, or instead all together, or continuously, or even incrementally or decreasingly in time. This would explain at least why peaks are found anyway.
For the redshift, several reasons may exist, and we will analyse this. In the next chapter, we will explain the physical origin of the Karlsson periodicities.

2. What can the Karlsson periodic peaks in the quasar's redshift distribution tell us about the universe?

2.1. The mainstream meaning of the Hubble constant.

Originally, a relationship between redshift and distance was discovered. The Doppler effect was also supposed to be at its origin. The idea of an expanding universe came also from the fact that there is no substantial blueshift. It was supposed that the objects were moving away from the observer.

The time-dependent scale factor $\boldsymbol{a}$, related to the Hubble constant is defined by $\boldsymbol{r} = \boldsymbol{a}(\boldsymbol{t}) \cdot \boldsymbol{x}$, where $\boldsymbol{x}$ is the static, non-expanded length and $\boldsymbol{r}$ is the real radius of the universe due to expansion.

The universe expands with the scale factor $\boldsymbol{a}$, and the Hubble constant is given by : $\boldsymbol{H} = \dot{\boldsymbol{a}}/\boldsymbol{a}$.

Since the Hubble constant is time-dependent, at a given time, the "zero" Hubble constant is defined. For a distance $\boldsymbol{r}$ from the universe's centre, at a certain time, the "zero" Hubble constant is : $\boldsymbol{H_0} = \dot{\boldsymbol{r}}/\boldsymbol{r}$.

For any object at a distance $\boldsymbol{d}$ from the observer, moving at a velocity $\dot{\boldsymbol{d}}$, we get : $\boldsymbol{H} = \dot{\boldsymbol{d}}/\boldsymbol{d}$.

This is the mainstream explanation, related to the supposed universe's expansion.

2.2. The periodicities of the exponential power of the quasar's redshift caused by the cosmological redshift.

The exponential power of the quasar's redshift caused by the cosmological redshift (Zwicky, Ashmore) is given by $\boldsymbol{H d/c}$, wherein $\boldsymbol{H}$ is the Hubble constant, $\boldsymbol{d}$ is the distance to the object and $\boldsymbol{c}$ the speed of light.

It is easy to see that :

$$\Delta \ \ln(1 + z) = H/c \cdot \Delta \ d \tag{2.5}$$

Consequently to Karlsson's periodic peaks every 0.205 units, we get $\Delta \boldsymbol{d} = \mathbf{0.205}\, \boldsymbol{c}/\boldsymbol{H}$ (2.6)

which corresponds to $\Delta \boldsymbol{d} = 2.7 \cdot 10^{25}$ m , based on a Hubble constant of $\boldsymbol{H} = 2.3 \cdot 10^{-18}\ \mathrm{s}^{-1}$.

In many observations, several quasars are more or less connected to the host (parent) galaxy. The host galaxy is mostly a radio galaxy and often is a very active galaxy where a high mass density and star formation is observed. It is obvious that these high densities are caused by gyrotation (see my former papers).

The presence of several quasars, bound with an active galaxy suggests the possibility of circling light. In my paper "Quasar's Luminosity, the Gravitation Decay and the Galaxy's Time-Clones" I suggested the circling of light about the universe's centre due to its high mass. In that paper, I based the calculations upon an expansion theory. We analyse here the case of a steady universe because this reduces the number of unknown parameters such as the evolution of the universal gravitation constant or that of the speed of light.

In this analysis, we will support the Ashmore redshift theory (which he calls 'tired light theory') that states that the redshift doesn't represent a velocity of celestial objects but a loss of energy of the photons due to free hydrogen in space. At each collision, a part of the photon's energy is lost and the wavelength consequently increases.

Thus, the distance $\Delta \boldsymbol{d}$ describes a full revolution about the universe's centre along any possible elliptic path between the original object and us. For the sake of simplicity, let us suppose that the full revolution has the shape of a circle. Then $\Delta \boldsymbol{d} = 2\,\pi\,\Delta \boldsymbol{r}$, and knowing that the universe's age is considered to be $1/\boldsymbol{H}$ or $4.35 \cdot 10^{17}$ s and the supposed universe's radius $\boldsymbol{c}\,\boldsymbol{H}$ or $1.3 \cdot 10^{26}$ m , the distance $\Delta \boldsymbol{r}$ is about 3 % of the supposed universe's radius :

$$\Delta \boldsymbol{r} = 4.26 \cdot 10^{24}\ \mathrm{m} \tag{2.7}$$

As said before, the Karlsson peaks are supposed to be 3.46, 2.63, 1.96, 1.41, 0.96, 0.60, 0.30 and 0.06 , whereof the highest two values are only predictions. The lowest value could be caused by the average gyro-gravitational redshift of quasars, but this merits a separate study.

Indeed, there are quasars, only very few, that are found with the highest two redshifts and even more, but it should be confirmed that they form real peaks yet. Alternatively, the high redshifts could be caused by hydrogen clouds as well.
Of five peaks we are certain that it concerns high-quantity quasar-peaks : 1.96, 1.41, 0.96, 0.60, 0.30. Thus, there are five revolutions that already got completed. Consequently, the total elapsed time up to now is :

$$t_{universe} = 5 \cdot c^{-1} \; \Delta d \; = \; 4.46 \cdot 10^{17} \text{ s} \qquad (2.8)$$

which is almost identical to the universe's age $1/H$.

This spectacular result is an excellent support for the circling light theory and shows that an expanding universe is not the most logical way to interpret the Karlsson periodic peaks.

2.3. Calculation of the universe's mass.

How large is the universe's mass? Out of the former chapter, we can find an estimation. Let us look at the radius Δr that defines the circling diameter of the light about the universe at the level of our galaxy.

When the outer mass M_u (outside our sphere) is subtracted from the inner mass M_i (inside our sphere) , we get the mass $M_c = M_i - M_u$ that defines the curving of the light at our radius.

From my paper "Quasar's Luminosity, the Gravitation Decay and the Galaxy's Time-Clones." I found that the radius for circling light is : $r_L = \dfrac{r_g^2 \, c^2}{2G\,M}$. Herein, r_g is the gravitational radius for the given force, and M is the considered mass of our universe (here : M_c) . Indeed, since $r_L = r_g = \Delta r$, we come to :

$$M_c = \frac{c^2 \Delta r}{2G} \qquad (2.9)$$

or

$$M_c = 2.9 \cdot 10^{51} \text{ kg} \qquad (2.10)$$

The mass of the total universe $M_i + M_u$ will probably be between $3 \cdot 10^{51}$ and $4 \cdot 10^{51}$ kg , and far below 10^{52} kg if we consider that the convex bending of light is only possible if the inner mass is sensibly more important than the outer mass.
Based on this information, we can estimate the universe's radius out of (2.7) between $4.5 \cdot 10^{24}$ and $6 \cdot 10^{24}$ m only.

3. Discussion and conclusions.

It is found in this paper that the Ashmore redshift combined with the circling light theory are particularly useful to explain the redshift of quasars and the quasar peaks' distribution. We see multiple quasars with different redshifts that follow periodicities according Karlsson and that show the location of our galaxy in the universe.
The radius where our galaxy is situated, seen from the universe's centre, is five times smaller than the theoretical radius of the universe.
From where our galaxy is situated, we can see most of the universe's past because of the circling of light about the universe. Finally we calculated quite precisely the mass of the part of the universe that bends the light to revolutions at our galaxy's "world-radius", and we have a very good approximation for the universe's mass and its radius as well.
The analysis has been done in a non-expanding universe, although an expanding universe is not yet impossible. The advantage of an analysis in a non-expanding universe limits the number of unknown parameters. However, knowing the preceding, this expansion could be very different than what mainstream accepts, and should be

analysed with an open mind. One of the issues to solve is why the universe seems to have a centre, and why the universe seems to have a rather homogeneous structure as well in parts of the deep sky. Another is the to-be-discovered time-clones, predicted in my paper "Quasar's Luminosity, the Gravitation Decay and the Galaxy's Time-Clones." and wherefore there is no evidence yet, for the simple reason that there has not been searched after by scientists yet. At 90° from the group of quasars and their host-galaxy, a identical galaxy as the host-galaxy should sometimes be found, that however might be in an older or a younger state. The light of the galaxy at 90° could have followed another path than the quasars and their host-galaxy between the actual light emission location and the observer.

4. References

1. De Mees : Quasar's Gyro-gravity Behavior, Luminosity and Redshift , General Science Journal, 2009.

2. De Mees : Quasar's Luminosity, the Gravitation Decay and the Galaxy's Time-Clones , General Science Journal, 2009.

3. Lyndon Ashmore : "Recoil Interaction Between Photons and The Electrons In The Plasma Of Intergalactic Space Leading To The Hubble Constant And CMB", March 2003. http://www.lyndonashmore.com/

4. Gordon T. Richards et al. : "The SDSS Quasar Survey: Quasar Luminosity Function from Data Release Three.", 2006, arXiv:astro-ph/0601434v2.

5. Karlsson, K. G. : "On the existence of significant peaks in the quasar redshift distribution", Astronomy and Astrophysics, vol. 58, no. 1-2, June 1977, p. 237-240.

6. Hilton Ratcliffe : "A Review of Anomalous Redshift Data", http://www.hiltonratcliffe.com, 2009.

7. H. Arp, C. Fulton : "A Cluster of High Redshift Quasars with Apparent Diameter 2.3 Degrees", arXiv:0802.1587v1, 2008.

8. H. Arp, C. Fulton : "The 2dF Redshift Survey II: UGC 8584 - Redshift Periodicity and Rings", arXiv:0803.2591v1, 2008.

9. H. Arp : "Origins of Quasars and Galaxy Clusters", arXiv:astro-ph/0105325v1, 2001.

10. Zwicky, F. : On the red shift of spectral lines through interstellar space, 1929 Proc. Nat. Acad. Sci., 15, 773 – 779.