Model of Galactic Center-Pleiades-Sun

JianFei Chen
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[Abstract] Author found that distance from Sun to Pleiades and the Bohr radius of hydrogen atoms meets the condition for energy wave resonating. The energy from the Bohr radius of huge amount of atoms in the universe, makes Sun and Pleiades to resonate with the current distance. Sun and Pleiades are strongly linked as a group, and Sun revolves around Pleiades. Finally the model of Galactic Center-Pleiades-Sun was set up. The greatest significance of this paper is to link the macroscopic structure of the universe with the microscopic atomic structure.

Pleiades is mysterious in many ancient books and stories, which attracts many scientists to study. Author found that distance of Sun-Pleiades is especial which has correlations with the Bohr radius of hydrogen atoms.

The distance from Sun to Pleiades was already measured much accurate. The current data is 136.2±1.2pc \[^1\] , which was measured by the group of Carl Melis at 2014. It was confirmed as 444.2ly \[^2\] by Gaia Staff at 2018. The two data are same.

\[
D_1 = 136.2 \pm 1.2 pc = 444.225 ly = 4.202693 \times 10^{18} m \pm 0.88\% \quad (1)
\]

In this paper, unit conversion as follows.

1pc=3.261 563 777 141 879 8291 ly
1ly =9 460 730 472 580 800 m

Bohr radius \( a_0 \) can be checked in CODATA: 2018\[^3\] as follow:

\[
a_0 = 5.291 772 109 03(80) \times 10^{-11} m \quad (2)
\]

With the equation (1) and (2), compare them as follow:

\[
\frac{D_1}{a_0} = \frac{4.202456 \times 10^{18}}{5.291 772 109 03 \times 10^{-11}} = (1 + 0.236\%) \times 2^{96} \cong 2^{96} \quad (3)
\]

Bohr radius \( a_0 \) is the distance between electron and proton in hydrogen atoms. Since every atoms has same value of Rydberg constant \( R_\infty \), we can believe that Bohr radius \( a_0 \) is existing in every atom. The distance \( a_0 \) can cause a wave with the wavelength of \( a_0 \), and the distance \( D_1 \) between Sun and Pleiades can also cause a wave with the wavelength
of $D_1$. According to Method (#3) of $2^n$ equivalence principle, $\lambda \overset{\text{resonate}}{=} 2^{96} \lambda$, a huge amount of energy waves $a_0$ from every atom all over the word, make energy wave $D_1$ to resonate and easily transfer the energy to it. According to Method (#1) of Integer ratio principle, while wave $D_1$ is resonating by wave $a_0$, the mean distance of Sun-Pleiades $D_{1,m}$ must be strict $2^{96}$ times of $a_0$, any little difference will be removed by resonance.

$$D_{1,m} = 2^{96}a_0 = 4.192574 \times 10^{18} m = 443.16 \text{ ly} = 135.87 pc \quad (4)$$

Since distance of Sun-Pleiades is resonating with Bohr orbits, Sun and Pleiades are closely linked with powerful resonance energy. It means there is a powerful gravity between Sun and Pleiades, which is far greater than universal gravitation of them. Because solar mass is much smaller than Pleiades mass, Sun has to revolve around Pleiades, then distance of Galactic Center and Pleiades is effective.

Position of Pleiades (M45) \cite{4} as follow:

R.A. (2000) 03h 47.0m Dec. (2000) +24° 07’ \quad (5)

Distance from Sun to Galactic Center, the current accurate value was measured by the GRAVITY Collaboration \cite{5} at 2019 as follow:

$$D_2 = 8178 \pm 13_{\text{stat}} \pm 22_{\text{sys}} pc = 8178 pc \pm 0.43\% \quad (6)$$

Position of Galactic Center (Sqr A*) \cite{6} is as follow:

R.A. 17h 45m 40.0409s Dec. -29° 00’ 28.118” \quad (7)

With the data of (1, 5, 6, 7), can calculate the distance from Pleiades to Galactic Center as follow:

$$D_3 = 8299.65 pc \pm 0.43\% \quad (8)$$

Since Sun revolves around Pleiades, then Pleiades revolves around Galactic Center. The revolution orbit of Pleiades around Galactic Center causes a wave with wavelength equal to the perimeter $2\pi D_3$. With the equation (1) and (5), we can get as follow:

$$\frac{2\pi D_3}{D_1} = \frac{2\pi \times 8299.65}{136.2} = 382.88 = (1 - 0.292\%) \times 12 \times 2^5 \quad (9)$$

If use the logic value of equation (4), then

$$\frac{2\pi D_3}{D_{1,m}} = \frac{2\pi \times 8299.65}{135.87} = 383.81 = (1 - 0.050\%) \times 12 \times 2^5 \quad (10)$$

According to Method (#3) of $2^n$ equivalence principle, $\lambda \overset{\text{resonate}}{=} 2^5 \lambda$. According to Method (#2) of Preferred 12 principle, wave $\lambda$ always prefer to resonate with the wave of
12\lambda. So wave $D_1$ and the wave $2\pi D_3$ will resonate together. According to Method (1) of Integer ratio principle, while wave $D_1$ and the wave $2\pi D_3$ resonate together, the distance $D_3$ will be adjust to meet that $2\pi D_3 = 12 \times 2^5 \times D_1$, any little difference will be removed by resonance. With equation (10, 4), mean distance $D_{3,m}$ from Pleiades to Galactic Center as follow:

$$D_{3,m} = 6D_{1,m} \times 2^5 / \pi = 8303.76 \text{ pc}$$

(11)

Author also found that line of Sun-Pleiades and the galactic plane have an intersection angle of 23.525°, which is consistent with the current obliquity of the ecliptic for the Earth (23.44°). It should not be accident. These angles must be formed by some rules, and will be steady. Therefore we can get the model as Figure 1.

![Figure 1. Model of Galactic Center-Pleiades-Sun](image)

Pleiades revolves around Galactic center at Galactic plane, and Sun runs along the underside of the cone with Pleiades at the peak as Figure 1.

[Summary]

This paper determined that sun revolves around Pleiades, which is consistent with ancient literatures. And established an especial model of Galactic Center-Pleiades-Sun. This paper also tells us that Universal Gravitation is not the only Gravity between celestial bodies, and that distances between celestial bodies have important effect, which are important in studying astronomy. The greatest significance of this paper is to link the macroscopic structure of the universe with the microscopic atomic structure.
Methods

#1. Integer ratio principle:
If two waves interrelate, one wave makes the other to resonate, then the ratio of their frequency (wavelength) must be a strict ratio of two integers. Any little difference will be removed by resonance.

#2. Preferred 12 principle:
According to the paper [7], at the beginning of the evolution of matter, 12 times of particles always gather into a new particle one by one, it means that a particle includes 12 same parts. This structure will remain in the future. So any energy wave of $\lambda$ always prefers the resonant wave of $12\lambda$.

#3. $2^n$ equivalence principle:
According to the paper [7], the resonance with double or half frequency can rapidly transfer the energy one by one, until the energy is absorbed. $\lambda \overset{\text{resonate}}{\rightarrow} 2^n \lambda$

References


