Causes Of Fermi Bubble

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Abstract: There is a mass very huge star in Milky Way Galactic disk center, known as Milky Way "Nuclear-Star". Nuclear-Star mass exceeds solar mass 9 trillion times. Nuclear-Star center temperature exceed solar center temperature 20.8 thousand times. Nuclear-Star center temperature exceed 275.446 billion K, enough make substances fission into higher frequency gamma photons. Nuclear-Star spin axis ends jet out gamma-ray. Gamma-ray circular arc-shaped trajectory form Fermi bubble.

Key words: Milky Way, nuclear star, center temperature, gamma ray, arc-shaped track, Fermi bubble

0. Foreword

In 2010, NASA's "Fermi" gamma-ray telescope photographed Milky Way galactic disk center position's strange phenomenon. galactic disk center jet out two huge gamma-ray bubbles, is called "Fermi bubble". Two Fermi bubble shapes and sizes exactly same, perpendicular to galactic disk plane, symmetry to galactic disk center, total height about 50000 light-years. Fermi bubble's inner layer is gamma-ray bubble. Fermi bubble's outer layer is X-ray bubble.

Fermi bubble formation reason is still unsolved mystery.

1. Milky Way's Nuclei Star

There is a mass very huge star in Milky Way Galactic disk center, known as Milky Way "Nuclear-Star". Nuclear-Star center and galactic disk center is same point. Nuclear-Star spin axis perpendicular to galactic disk plane. Nuclear-Star very huge gravitation and centrifugal force command the movement of Milky Way all substances.

Nuclear-Star, stellar, sun have same operational mechanism, is only mass difference huge.

2. Mass Of Nuclear-Star

2.1 Nuclear-Star Mass Estimate

Solar mass exceeds solar system all substances total mass 90%. Allows the sun gravitation

to command solar system all substances movement. Nuclear-Star very huge gravitation command the movement of Milky Way all substances. Therefore, Nuclear-Star mass exceeds Milky Way all substances total mass 90%. Does not include Nuclear-Star mass, Milky Way all substances total mass is about solar a trillion times. So, Nuclear-Star mass exceeds solar mass 9 trillion times.

2.2 Nuclear-Star Mass Calculation

At aphelion and perihelion, Nuclear-Star and earth, sun and earth, attractive force sum is equal. As such,

Mh/(rht-ry)^2-Mt/ry^2=Mh/(rht+rj)^2+Mt/rj^2. That is,

Mh=Mt(1/rj^2+1/ry^2)/(1/(rht-ry)^2-1/(rht+rj)^2)。

Mh is Nuclear-star mass. Mt is solar mass. ry is at aphelion, earth and sun center distance, about 152 billion meters. rj is at perihelion, earth and sun center distance, about 147.1 billion meters. rht is Nuclear-star and sun center distance, about 27700 light years, about 27700 * 31558150*299792458 meters.

Conditional enthusiasts can take this formula to calculate Nuclear-Star mass.

3. Nuclear-Star Center Temperature

Nuclear-Star mass exceed solar mass 9 trillion times. So, Nuclear-Star center temperature exceed solar center temperature 20.8 thousand times.

Solar center temperature lower limit is

0.001053×1.989^(1/3)×10^10=13242601 (℃).

So, Nuclear-Star center temperature lower limit is

13242601×20800=275446100800 (℃).

About 275.446 billion K.

4. Nuclear-Star Substance Form

Nuclear-Star mass big enough, Nuclear-Star center temperature is high enough, so that Nuclear-Star temperature above boiling point of all elements. Nuclear-Star all substances is vaporized into gasification substances by high temperature. Nuclear-Star became gasification substance sphere. Nuclear-Star spin centrifugal force make Nuclear-Star become a flat sphere. Nuclear-Star center pressure smallest direction is Nuclear-Star spin axis both ends.

5. Causes Of Fermi Bubble

5.1 Photon Frequency

Solar center ultrahigh temperature make substances fission into photons. Photon frequency is proportional to solar center temperature.

Solar center temperature up 13.24 million K, only enough make substances fission into ultraviolet photons, not enough make substances fission into X-photons, more not enough make substances fission into gamma photons.

Nuclear explosion center temperature up several hundred million K, can make substances fission into gamma photons.

Nuclear-Star center temperature exceed 275.446 billion K, enough make substances fission into higher frequency gamma photons.

5.2 Photon trajectory

In 1919, a total solar eclipse observation confirmed, photons trajectory are circular arc-shaped.

Photon rotation leads to photon trajectory appear circular arc-shaped. Photon trajectory curvature radius is inversely proportional to photon rotation speed. Photon rotation speed is proportional to photon frequency. So, Photon trajectory curvature radius is inversely proportional to photon frequency.

The photon frequency higher, the photon trajectory more bend. The photon frequency lower, the photon trajectory more flat.

5.3 Fermi Bubble Forming

Stellar center jet outward photons, stop by high-temperature gasification substances, can not reach photosphere beyond. Stellar center pressure smallest direction is Nuclear-Star spin axis both ends. Along stellar spin axis jet out photons, stop least by high-temperature gasification substances, can reach photosphere beyond. Reach photosphere beyond photons, circular arc-shaped trajectory form a light bulb. Different frequencies photons form different size light bulbs. Light bulbs size is inversely proportional to photons frequency.

Sun spin axis ends jet out ultraviolet light bubble.

Nuclear-Star spin axis ends jet out gamma-ray light bubble, namely Fermi bubble. Fermi bubble inner layer is gamma-ray light bubble. Fermi bubble outer layer successively is X-ray light bubble, ultraviolet light bubble, visible light bubble, infrared light bubble, microwave light

bubble, …

6. Epilogue

Nuclear-Star spin axis ends jet out gamma-ray. Gamma-ray circular arc-shaped trajectory form Fermi bubble.