ISSN: 2754-4753

Journal of Physics & Optics Sciences

SCIENTIFIC Research and Community

Short Communication

Open Access

The Mass of the Central Region of the Milky way Galaxy

Yanbikov Vil'dyan Shavkyatovich

Russian Federation

ABSTRACT

On the Basis of tabular values of the gravitational constant. The calculated mass of the Nucleus of the Milky Way galaxy. The numerical value of the gravitational constant is determined by the mass of the nucleus of the milky way galaxy.

***Corresponding author**

Yanbikov Vil'dyan Shavkyatovich, Russian Federation, Russia. Email: vildyanyanbikov@yandex.ru

Received: October 27, 2021; **Accepted:** November 08, 2021; **Published:** November 30, 2021

Keywords: Gravitational Constant, The Core of the Galaxy, The Core Mass of the Galaxy

Introduction

The galactic core determines the distribution of the gravitational constant within the galaxy. The gravitational constant is no longer constant inside the galaxy. The farther away from the center of the galaxy, the smaller it is. The mass of the Galactic core is determined in terms of the gravitational constant inside the Solar system (table value).

The Basic Part

Let the center of the nucleus of the galaxy O. The radius of the ball region of the galaxy is R_0. The mass of a galaxy M. The Solar system is at a distance H from the center of the galaxy (fig.1). we introduce a coordinate system. To the center of the kernel was on the z axis at a Distance H from the beginning of the coordinate system. Place a test proton in the origin of the Coordinate system at point p. In inside the ball volume. $dV = R^2 \sin\theta \, d\theta \, d\varphi \, dR$. The number of protons in one cubic meter inside the ball

$n = \frac{\rho}{m} = \frac{M}{V * m}$ where V – the volume of a sphere of radius R_0, m is the mass of a proton, ρ is the density substance inside the ball, M – mass of the substance inside the bowl. The number of protons inside the volume dV is equal to $dN = \frac{M}{V* m} R^2 \sin\theta \, d\theta \, d\varphi \, dR$; where Δε taken from Heisenberg's uncertainty principle:

$\Delta\varepsilon * \Delta t = \frac{h}{2\pi}$; Take $\Delta t = 1$ second, then $\Delta\varepsilon = \frac{h}{2\pi}$ The energy of the incident proton p per second from the volume dV is equal to

$\Delta\varepsilon * dN \frac{\pi rr}{4\pi RR}$; where r – the radius of the proton ($r = 1.5 * 10^{-15}$ m); π = 3.14. R – the distance from the volume dV before the beginning of the coordinate system. The energy of the incident proton p. 1 second of the entire volume of a sphere

$\varepsilon_p = \frac{M h rr}{8\pi m V} \iiint \sin\theta d\theta d\varphi dR$; where $0 \le \theta \le \text{arctg}\,\theta$, $0 \le \varphi \le 2\pi$;

$H - R_0 \le R \le H + R_0$; $\text{tg}\,\theta = \frac{R0}{H}$. In view of the smallness of the angle θ we write $\text{arctg}\,\theta = \theta = \frac{R0}{H}$; In view of the smallness of the angle θ we write $\text{arctg}\,\theta = \theta = \frac{R0}{H}$; After calculating the integral get $\varepsilon_p = \frac{3}{16} \frac{M h rr}{\pi m HH}$; Let on the edge of the Solar system. Far away from massive objects. There are two protons at a distance R from each other. Energy falling on the p2 proton from the proton

p_1 is equal to $\varepsilon = \varepsilon_p \frac{\pi rr}{4\pi RR} = \frac{3}{64} \frac{Mhrrrr}{\pi mHHRR}$; The impulse received by the proton p2 in one second is equal to $\Delta p = \frac{\varepsilon}{c}$; The force of attraction between the protons p_1 and p_2 is equal to

$F = \Delta p = \gamma \frac{mm}{RR} = \frac{3}{64} \frac{Mhrrrr}{\pi mcHHRR}$; where c – the speed of light in vacuum. Hence the weight of the Central region of the milky way galaxy $M = \frac{64}{3} \gamma \frac{\pi mmmcHH}{hrrrr}$; where γ the table value of the gravitational constant ($\gamma = 6.672 * 10^{-11}$ н м^{2}кг$^{-2}$).

Take $H = 2.65 * 10^{20}$ м. then $M = 1.3 * 10^{53}$ кг. Conclusion: the galactic core in the weight specifies a numeric value the gravitational constant inside the Solar system.

The conclusions

Calculating the mass of the galaxy's core will help advance the study of outer space.

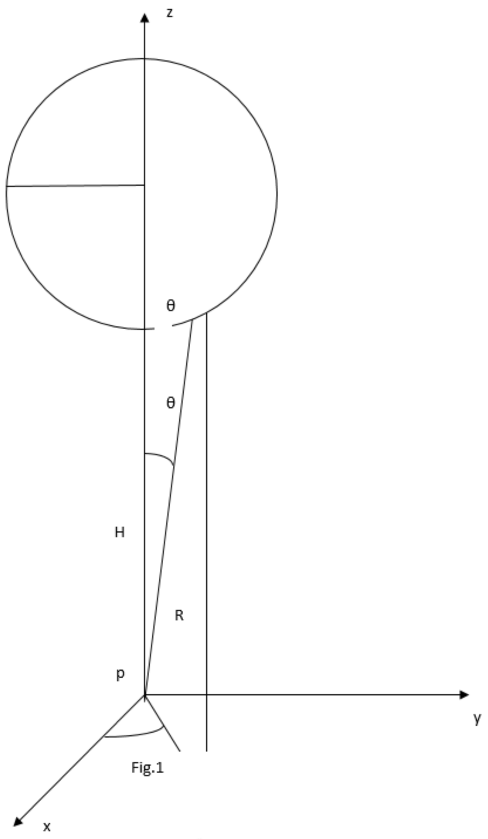

Figure 1