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Conversion of Waves Under Different Gravitational Field Intensity Area

Sankar Palchoudhury

Independent Researcher, Retd. W. B. S. Govt. Employee, 101/673/A, College Para, P.O. Kharia, Ward No. 21, Dist. Jalpaiguri, Pin Code -735101, West Bengal, India

sankarpalchoudhury@gmail.com

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ABSTRACT

Natural disturbances in the gravitational field cause light, infrared, x-ray, and other waves. We define a complete wave as having two parts: a crest and a trough. A complete wave represents a single frequency. Every wave is initially powered at the source along with its wavelength and amplitude, which all vary with the gravitational field intensity in subsequent steps. A/λ has a significant impact on the wave's power. A gravitational wave is a converted wave, because of its changing power due to the changing intensity of the gravitational field.

Keywords: Gravity, Black holes, Gravitational singularity

INTRODUCTION

Natural disturbances in the gravitational field cause light, infrared, x-ray, and other waves. We define a complete wave as having two parts: a crest and a trough. A complete wave represents a single frequency (Palchoudhury, 2021).
Here $F = kiA/\lambda$ is the Palchoudhury wave equation. F is the force of a unit wave, k is the proportionality constant (1.9199E-34), i is the gravitational field intensity, λ wave's wavelength, and A is its amplitude.

Again, $P = Ff.P$ is the force of waves per second, and f is the frequency of waves per second (Palchoudhury, 2020a). A and λ exist in the same space.
The A/λ ratio is crucial in calculating wave energy. A wave power varies with A and inversely with λ. Again, $C = \lambda\, f.C$ is the velocity of light. We also classify a wave (such as red, blue, infrared, x-ray) based on the range of wavelengths of the wave (Palchoudhury, 2020b). Every wave is initially powered at the source, along with a wavelength and amplitude that vary with the gravitational field intensity.

WAVE PHENOMENON

Due to a barrier of higher gravitational field intensity in an area, the wavelength decreases. Again, the wavelength increases as the strength of the gravitational field intensity in an area weakens (Palchoudhury, 2021). When the gravitational field intensity in an area is 1, then $d = \sqrt{GM}$. This distance varies for different bodies based on their mass. And the dominion area around the body from its center of gravity is this distance. The dominion area is shown in Table 3.

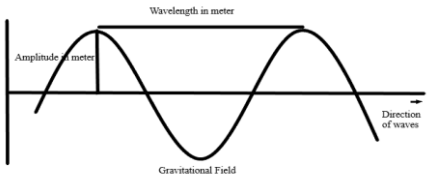

Figure -1

Table 1 Role of a wave

Unit Wave	K	I	λ	A	A/λ	F	f	P
Red*	1.92E-34	9.798	6.86E-07	2.42E-07	3.53E-01	6.64E-34	4.37E+14	2.90E-19

* (Palchoudhury, 2020a)

Table 2 Role of A/λ in the power of a wave

Wave	λ	Variation of A	Variation of A/λ	Variation of F	f	Variation of P
1	2	3	4	5	6	7
Red	7.40E-07	2.97E-07	4.01E-01	7.54E-34	4.05E+14	3.06E-19
	7.40E-07	2.86E-07	3.86E-01	7.26E-34	4.05E+14	2.94E-19
	7.40E-07	2.76E-07	3.72E-01	7.00E-34	4.05E+14	2.84E-19
	7.40E-07	2.66E-07	3.60E-01	6.76E-34	4.05E+14	2.74E-19
	7.40E-07	2.61E-07	3.52E-01	6.63E-34	4.05E+14	2.68E-19
	6.25E-07	2.33E-07	3.73E-01	7.02E-34	4.80E+14	3.37E-19
Orange	6.25E-07	2.23E-07	3.57E-01	6.72E-34	4.80E+14	3.22E-19
	6.25E-07	2.20E-07	3.52E-01	6.63E-34	4.80E+14	3.18E-19
Yellow	5.91E-07	2.17E-07	3.67E-01	6.91E-34	5.08E+14	3.51E-19
	5.91E-07	2.08E-07	3.52E-01	6.63E-34	5.08E+14	3.37E-19
Green	5.66E-07	2.25E-07	3.98E-01	7.49E-34	5.30E+14	3.96E-19
	5.66E-07	2.15E-07	3.79E-01	7.13E-34	5.30E+14	3.78E-19
	5.66E-07	2.05E-07	3.62E-01	6.81E-34	5.30E+14	3.61E-19
	5.66E-07	1.99E-07	3.52E-01	6.63E-34	5.30E+14	3.51E-19
Cyan	5.01E-07	1.82E-07	3.63E-01	6.83E-34	5.98E+14	4.09E-19
	5.01E-07	1.76E-07	3.52E-01	6.63E-34	5.98E+14	3.96E-19
Blue	4.86E-07	1.84E-07	3.80E-01	7.14E-34	6.17E+14	4.40E-19
	4.86E-07	1.75E-07	3.60E-01	6.77E-34	6.17E+14	4.17E-19
	4.86E-07	1.71E-07	3.52E-01	6.63E-34	6.17E+14	4.09E-19
Violet	4.51E-07	1.88E-07	4.17E-01	7.84E-34	6.65E+14	5.21E-19
	4.51E-07	1.76E-07	3.91E-01	7.36E-34	6.65E+14	4.89E-19
	4.51E-07	1.66E-07	3.69E-01	6.93E-34	6.65E+14	4.61E-19
	4.51E-07	1.59E-07	3.52E-01	6.63E-34	6.65E+14	4.40E-19
Ultra-violate – A	3.81E-07	1.62E-07	4.25E-01	7.99E-34	7.87E+14	6.29E-19
	3.81E-07	1.50E-07	3.94E-01	7.40E-34	7.87E+14	5.83E-19
	3.81E-07	1.40E-07	3.67E-01	6.90E-34	7.87E+14	5.43E-19
	3.81E-07	1.34E-07	3.52E-01	6.63E-34	7.87E+14	5.21E-19

Table 2 (a) Role of A/λ in the power of a wave

Wave	λ	Variation of A	Variation of A/ λ	Variation of F	f	Variation of P
1	2	3	4	5	6	7
Ultra-violate – B	3.16E-07	1.25E-07	3.96E-01	7.45E-34	9.49E+14	7.07E-19
	3.16E-07	1.15E-07	3.64E-01	6.84E-34	9.49E+14	6.49E-19
	3.16E-07	1.11E-07	3.52E-01	6.63E-34	9.49E+14	6.29E-19
Ultra-violate – C	2.81E-07	2.75E-07	9.80E-01	1.84E-33	1.07E+15	1.97E-18
	2.81E-07	2.21E-07	7.86E-01	1.48E-33	1.07E+15	1.58E-18
	2.81E-07	1.84E-07	6.55E-01	1.23E-33	1.07E+15	1.32E-18
	2.81E-07	1.58E-07	5.62E-01	1.06E-33	1.07E+15	1.13E-18
	2.81E-07	1.38E-07	4.92E-01	9.26E-34	1.07E+15	9.88E-19
	2.81E-07	1.23E-07	4.38E-01	8.24E-34	1.07E+15	8.79E-19
	2.81E-07	1.11E-07	3.94E-01	7.42E-34	1.07E+15	7.91E-19
	2.81E-07	9.90E-08	3.52E-01	6.63E-34	1.07E+15	7.07E-19
	1.40E-06	9.20E-07	6.57E-01	1.24E-33	2.14E+14	2.65E-19
Near infra	1.40E-06	6.58E-07	4.70E-01	8.83E-34	2.14E+14	1.89E-19
	1.40E-06	5.11E-07	3.65E-01	6.87E-34	2.14E+14	1.47E-19
	1.40E-06	4.93E-07	3.52E-01	6.63E-34	2.14E+14	1.42E-19
Radio Wave	1.00E+03	3.52E+06	3.52E+03	6.63E-30	3.00E+05	1.99E-24
	1.00E+03	3.52E+05	3.52E+02	6.63E-31	3.00E+05	1.99E-25
	1.00E+03	1.76E+03	1.76E+00	3.31E-33	3.00E+05	9.93E-28
	1.00E+03	7.04E+02	7.04E-01	1.33E-33	3.00E+05	3.97E-28
	1.00E+03	3.52E+02	3.52E-01	6.63E-34	3.00E+05	1.99E-28
Micro wave	1.00E-01	3.52E+00	3.52E+01	6.63E-32	3.00E+09	1.99E-22
	1.00E-01	1.41E-01	1.41E+00	2.65E-33	3.00E+09	7.95E-24
	1.00E-01	7.04E-02	7.04E-01	1.33E-33	3.00E+09	3.97E-24
	1.00E-01	3.52E-02	3.52E-01	6.63E-34	3.00E+09	1.99E-24
X-ray	1.00E-09	7.04E-08	7.04E+01	1.33E-31	3.00E+17	3.97E-14
	1.00E-09	3.52E-08	3.52E+01	6.63E-32	3.00E+17	1.99E-14
	1.00E-09	3.52E-10	3.52E-01	6.63E-34	3.00E+17	1.99E-16
Gravitational Wave	1.00E+06	3.52E+06	3.52E+00	6.63E-33	3.00E+02	1.99E-30
	1.00E+06	7.04E+05	7.04E-01	1.33E-33	3.00E+02	3.97E-31
	1.00E+06	5.03E+05	5.03E-01	9.47E-34	3.00E+02	2.84E-31
	1.00E+06	3.52E+05	3.52E-01	6.63E-34	3.00E+02	1.99E-31

Primary data on the wavelength range of various waves was collected from (Odenwald, 2019) and used in this article.
For example, the wavelength range of color red (625-740 nm), orange (590-625 nm), yellow (565-590 nm), green (500-565 nm), blue (450-485 nm), violet (380-450 nm), infrared wave (750 nm - 1 mm), band wave (1260-1675 nm), radio (1 m - 100 km), Microwave (~ 1 mm – 1 m), Ultraviolet wave (~ 10 – 400 nm), X-ray (~ 0.01 – 10 nm), Original Band (~ 1260 – 1360 nm), Extended Band (~1360 – 1460 nm), Gamma Ray (< 1E-11 Meter). This article also discusses data conversions in length, electron volts to Newton meters, and energy use. k=1.9199E-34, i= 9.798, C = 3.00E+08

Table- 3 Dominating area of the celestial bodies

Celestial body	Mass	$d = \sqrt{GM}$, when $GFI = 1$	(R) Radius	(D) Distance
1	2	3	4	5
Agr. A *	8.74E+36	2.41E+13	1.20E+10	2.43E+20
Sun **	1.99E+30	1.15E+10	6.96E+08	1.50E+11
Earth ***	5.97E+24	2.00E+07	6.38E+06	1.50E+11
Moon	7.30E+22	2.21E+06	1.74E+06	3.84E+08
Mercury	3.30E+23	4.69E+06	2.44E+06	5.79E+10
Venus	4.87E+24	1.80E+07	6.05E+06	1.08E+11
Mars	6.42E+23	6.54E+06	3.40E+06	2.28E+11
Jupiter	1.90E+27	3.56E+08	7.15E+07	7.79E+11
Saturn	5.68E+26	1.95E+08	6.03E+07	1.43E+12
Uranus	8.68E+25	7.61E+07	2.56E+07	2.87E+12
Neptune	1.02E+26	8.25E+07	2.48E+07	4.52E+12
Pluto	1.30E+22	9.31E+05	1.19E+06	5.91E+12

* Data of different parameter of Agr. A (Odenwald, 2019)
** Sun Fact Sheet, (Williams, 2022)
*** Planetary Fact Sheet – Metric (Williams, 2023)

G = 6.67E-11, d $(\sqrt{GM})$ is the distance from a celestial body's center of gravity, where $GFI = 1$, D (distance) between the sun and planets, Agr. A (the black hole) and the earth, and the earth and moon. The sun's dominating area is 1.15E+10 meters (Table-3, column 3), which is the closest to all planets (the distance between the sun and planets ranges from 1.50E+11 to 5.91E+12 meters) (Table-3, column 5). As a result, the sun's bright presence on Earth has increased. On the other hand, the dominant area of Agr. A (black hole) is 2.41E+13 meters (Table-3, column-3), which is the furthest away from the earth as the distance between Agr. A and the earth is 2.42573E+20 meters (Table-3, column-5). Because of the diluted gravitational field intensity, all rays, including gravitational waves, transform into other types of waves. Rays from a distant, larger star than the sun reach the Earth in a fainter mode due to gravitational field intensity dilation.

Table 4 The classification of waves under different areas of gravitational field intensity varies with distance from Sagittarius A black hole.

Sl. No.	D	i	Λ	A	A/ λ	F	F	P	Wave Classification
1	1.20E+10	4.05E+06	2.42E-15	8.54E-16	3.53E-01	2.74E-28	1.24E+23	3.40E-05	Gamma Ray
2	1.21E+10	4.01E+06	2.44E-15	8.61E-16	3.53E-01	2.72E-28	1.23E+23	3.34E-05	Gamma Ray
3	1.70E+10	2.02E+06	4.86E-15	1.71E-15	3.53E-01	1.37E-28	6.17E+22	8.43E-06	Gamma Ray
4	6.20E+10	1.52E+05	6.46E-14	2.28E-14	3.53E-01	1.03E-29	4.64E+21	4.77E-08	Gamma Ray
5	5.12E+11	2.22E+03	4.41E-12	1.55E-12	3.53E-01	1.51E-31	6.80E+19	1.02E-11	Gamma Ray
6	5.01E+12	2.32E+01	4.22E-10	1.49E-10	3.53E-01	1.57E-33	7.10E+17	1.12E-15	X-ray
7	2.41E+13	1.00E+00	9.80E-09	3.46E-09	3.53E-01	6.77E-35	3.06E+16	2.07E-18	X-ray
8	2.00E+16	1.46E-06	6.72E-03	2.37E-03	3.53E-01	9.87E-41	4.46E+10	4.40E-30	Micro-wave
9	5.00E+18	2.33E-11	4.20E+02	1.48E+02	3.53E-01	1.58E-45	7.14E+05	1.13E-39	Radio wave
10	2.00E+19	1.46E-12	6.72E+03	2.37E+03	3.53E-01	9.87E-47	4.46E+04	4.40E-42	Radio wave
11	2.52E+20	9.15E-15	1.07E+06	3.78E+05	3.53E-01	6.20E-49	2.80E+02	1.74E-46	Gravitational Wave

G = 6.67E-11, , d $(\sqrt{GM})$ is the distance from the center of gravity of a celestial body where $GFI = 1$, D (distance) between the sun and planets, Agr. A (the black hole) and earth, and earth and the moon. Due to the dilution of gravitational field intensity (from 4.05E+06 to 9.15E-15) with the distance between Sgr. A and Earth (from 1.20E+10 meters to 2.52E+20 meters), the gamma ray (wavelength 2.420E-15 meters) converts into a gravitational wave with a wavelength (1.07E+06 meters). Practically, a gravitational wave is a converted wave. Because of the changing power of gravitational field intensity, the wavelength, amplitude, and power of all waves change.

Every wave is initially powered at the source and has a wavelength and amplitude that vary with the strength of the gravitational field.

At earth initial distance 6.38E+06 meter from the center, X-ray powered by initial P =1.99E-16, i= 9.798, λ= 1.00E-09, A =3.52E-10, f =3.00E+17, F=6.62697E-34 cannot proceed further in the dominion area at a distance of 5.01E+12 meters from the Sagittarius A black hole, GFI = 2.32E+01, due to lack of required power (1.12E-15 - 1.99E-16).

Table 5 The classification of waves under different gravitational field intensity areas varies with distance from Sun & Earth.

	D	K	i	Λ	λ	A/λ	F	f	p
Outwards from Sun	6.96E+08	1.9199E-34	2.74E+02	3.582E-11	1.26E-11	3.53E-01	6.64E-34	3.00E+17	1.55E-13
	1.20E+09	1.9199E-34	9.27E+01	1.057E-10	3.73E-11	3.53E-01	1.85E-32	8.37E+18	1.78E-14
	1.70E+09	1.9199E-34	4.61E+01	2.126E-10	7.50E-11	3.53E-01	6.28E-33	2.84E+18	4.40E-15
	2.20E+09	1.9199E-34	2.75E+01	3.563E-10	1.26E-10	3.53E-01	3.12E-33	1.41E+18	1.57E-15
	2.70E+09	1.9199E-34	1.82E+01	5.370E-10	1.89E-10	3.53E-01	1.86E-33	8.41E+17	6.90E-16
	3.20E+09	1.9199E-34	1.30E+01	7.547E-10	2.66E-10	3.53E-01	1.24E-33	5.58E+17	3.49E-16
	3.70E+09	1.9199E-34	9.71E+00	1.009E-09	3.56E-10	3.53E-01	8.79E-34	3.97E+17	1.95E-16
	1.15E+10	1.9199E-34	1.00E+00	9.797E-09	3.46E-09	3.53E-01	6.57E-34	2.97E+17	2.07E-18
Inwards to Earth	2.00E+07	1.9199E-34	1.00E+00	9.797E-09	3.46E-09	3.53E-01	6.77E-35	3.06E+16	2.07E-18
	1.80E+07	1.9199E-34	1.24E+00	7.932E-09	2.80E-09	3.53E-01	6.77E-35	3.06E+16	3.16E-18
	1.60E+07	1.9199E-34	1.56E+00	6.264E-09	2.21E-09	3.53E-01	8.37E-35	3.78E+16	5.07E-18
	1.40E+07	1.9199E-34	2.04E+00	4.79E-09	1.69E-09	3.53E-01	1.06E-34	4.79E+16	8.66E-18
	1.20E+07	1.9199E-34	2.79E+00	3.52E-09	1.24E-09	3.53E-01	1.38E-34	6.26E+16	1.61E-17
	9.96E+06	1.9199E-34	4.02E+00	2.44E-09	8.60E-10	3.53E-01	1.89E-34	8.52E+16	3.34E-17
	6.38E+06	1.9199E-34	9.79E+00	1.00E-09	3.53E-10	3.53E-01	2.72E-34	1.23E+17	1.98E-16

The ray cannot proceed because the initial power (1.98E-16), wavelength (1.00E-09), and amplitude (3.53E-10) at a distance of 6.38E+06 meters from the earth and the apparent sun dominion area at a distance of 3.20E+09 meters from the sun are less than the required power (3.49E-16 -1.98E-16). However, at a distance of 6.96E+08 meter from the sun, the following and appearing earth dominion area rays reach to the earth according to changing distance, GFI, power, wavelength, amplitude, and maintaining the A/ratio. All types of waves proceed accordingly.

CONCLUSIONS

Natural disturbances in the gravitational field cause light, infrared, x-ray, and other waves. We define a complete wave as having two parts: a crest and a trough. A complete wave represents a single frequency. Every wave is initially powered at the source along with its wavelength and amplitude, which all vary with the gravitational field intensity in subsequent steps. There is an important role of A/λ in the power of wave.

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