

Double slit experiment decoded

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Abstract

When electron is fired one at a time onto double slit we see interference pattern, but if we detect these electrons after passing through the slit there is no interference pattern. There is no proper explanation given for this till date but this can be explained with help of quantization of space.

Keywords – Two slit experiment, Quantization of space

I. INTRODUCTION

Problem is we still do not understand why interference pattern is created when electron is bombarded onto two slits and why it does not create interference pattern when we detect electron after it goes through a slit, In Fine structure decoded^[1] paper, and empty space was termed to be made up of alternately spaced, real and imaginary spaces. Purpose of this paper is to explain the two slit experiment with help of quantization of space.

II. QUANTIZATION OF SPACE

In paper Fine Structure Decoded^[1], vacuum is divided into equally spaced, real and imaginary space, this configuration occupies complete space. That means there is no void space between them. A cell here is represented by rhombic dodecahedron as shown in Fig. 1. Rhombic dodecahedron was chosen because it is tessellating in nature, it is very close to shape of sphere and covers maximum volume.

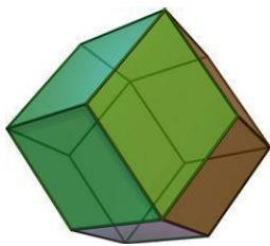


Fig 1: Rhombic dodecahedron

Structure of space is shown below in Fig. 2. Space is made (alternately placed real and imaginary spaces)



FIG 2: Empty space (Quantization of space)

III. CASE 1: ELECTRON BOMBARDED, ONE BY ONE IN TWO SLIT EXPERIMENT

When electron is bombarded one at a time on two slit experiment (see Fig 3) we get following pattern (see Fig 3)^[2].

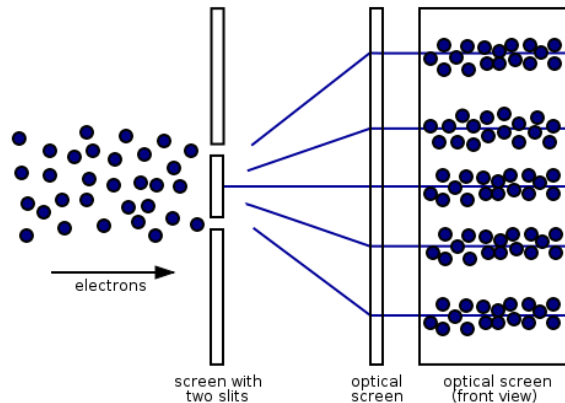


Fig 3: Two Slit Experiment Output

Electron do not passes through both slits neither electron interferes with itself. Process can be explained with help of quantization of space.

When electron moves in space actually it is passing through this quantization of space, while doing so it disturbs this space fabric, very similar to what happens when bullet is fired in air, bullet disturbs the air as shown below.

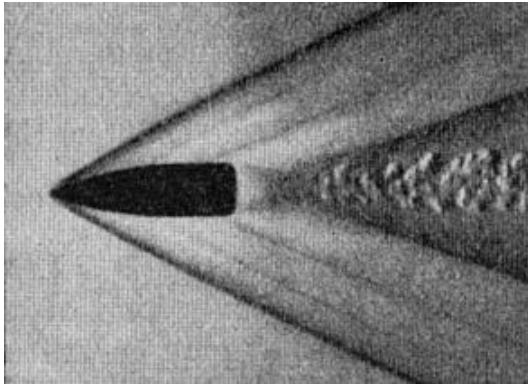


Fig 4: Bullet Moving Through Air

When space is disturbed means there is compression and expansion of cell in quantized space. This disturbance is in sync with state of electron (which means matter wave of electron).

When electron passes through one of the slit actually disturbance produced by the electron goes through both the slits. These disturbances emerge out of both slits and create an interference pattern.

Electron keeps on moving but when it encounters this interference pattern it changes the path to lease resistance path. And at the end when electron is detected at the optical plate we see interference pattern after long exposure of electrons. Electrons move from its original path because disturbance is in sync with electron state.

Analogy of this can be found when sand particles create a pattern when they are put in vibrating surface as shown in Fig 5.

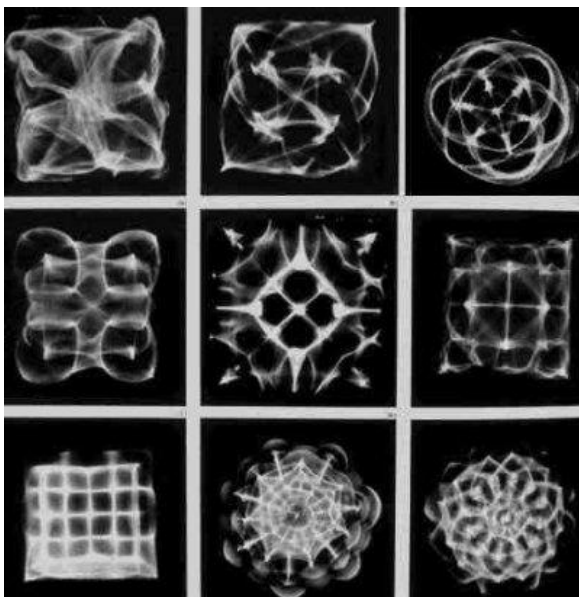


Fig 5: Pattern Produced when Sand Particles are Placed on Vibrating Medium

IV. CASE 2: ELECTRON BOMBARDED ONE BY ONE IN TWO SLIT EXPERIMENT WITH DETECTOR

If we use similar setup but place detector after the slits we do not see any interference pattern as shown in Fig 6.

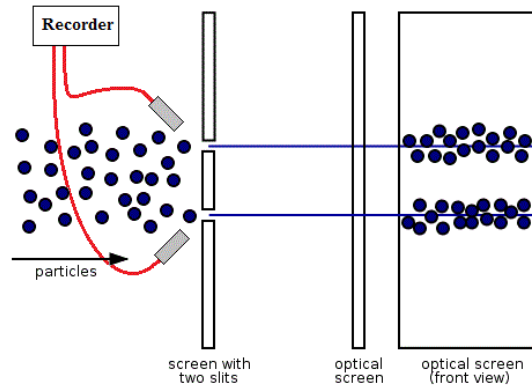


Fig 6: Two Slit Experiment with Detector

When one measures the electron (actually when any measurement is done on electron), we modify the state of the electron and now the disturbance produced the previous states are not in sync with new state of the electron. Hence there is no interference pattern, electron only behaves like a particle.

V. CASE 3: ELECTRON BOMBARDED ONE BY ONE IN ONE SLIT (OTHER SLIT IS CLOSED)

When any one the slit is closed the disturbance only passes through one slit as other slit is closed, hence there is no interference pattern created as shown in Fig 6.

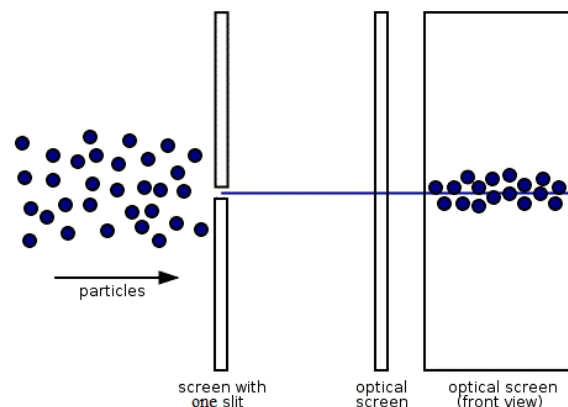


Fig 6: One slit is closed

VI. THOUGHT EXPERIMENT

If we capture an electron after passing through the slit and fire an electron with same state of electron which

was captured we should still get interference pattern because disturbance of space will be in sync with the state of new electron, this will prove that disturbance of space is main reason we see interference pattern .

VII. CONCLUSION

Double slit experiment of electron can be explained with help of disturbance in quantization of space.

ACKNOWLEDGEMENTS

I would like to thank Jim Al-Khalili for explaining double slit experiment briefly and explained what was not explained yet by Physics.

REFERENCES

Examples follow:

Journal Papers:

- [1] B. Poojary, —Fine Structure Decoded,| International Journal of Applied Physics and Mathematics, vol. 2, no. 4, pp. 244-249, 2012.
- [2] Donati, O, Missiroli, G F, Pozzi, G (1973). An Experiment on Electron Interference. American Journal of Physics 41:639–644 doi:10.1119/1.1987321