

## 4.8 Some Experiments Involving Double - Slit

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### ABSTRACT

We present patterns obtained when photons were made to pass through double slits improving on results obtained by Afshar<sup>1,2</sup> though in a different context.

Laser beam was passed through the double-slit with or without the wire grids 1 and/or 2 as the case may be.

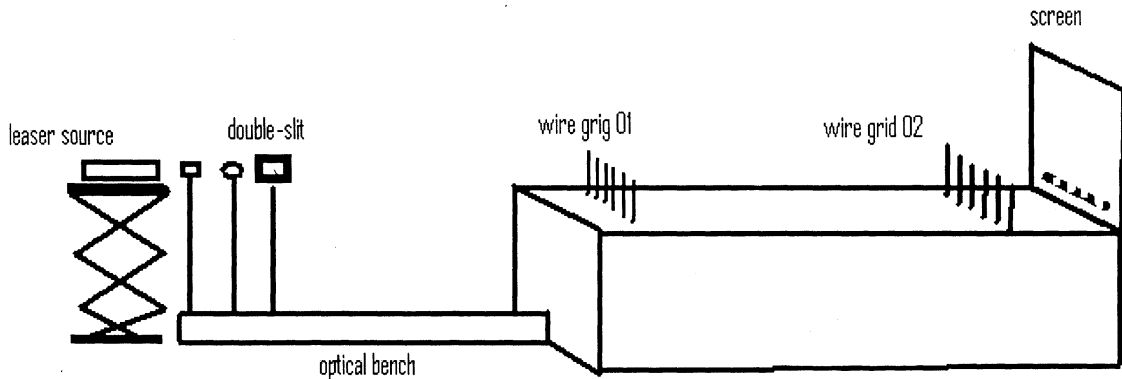


Fig (01)

Laser beam was made to pass through the double and strike the screen. Following pattern (Fig 02) was seen on the screen. The distance between the double slit and the screen was 430cm.



Fig (02)

Then wire grid 02 (radius 0.4mm, height 4cm) was placed at the zero probability positions of the pattern at 424cm from double-slit. However the pattern was not changed as seen in Fig (03). This is the essence of experiments carried out by Afshar.

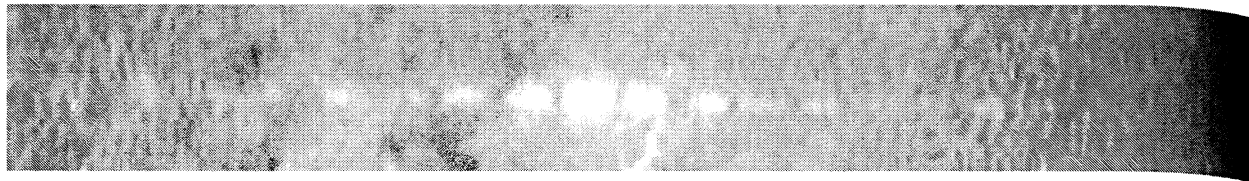


Fig (03)

Another wire grid (01) was placed at the zero probability position of the pattern at 384cm from double-slit. The pattern was not changed as seen in Fig (04).

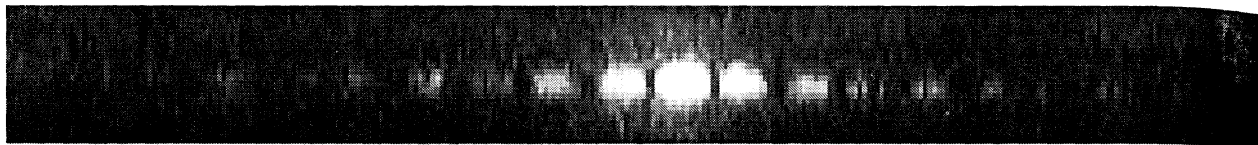


Fig (04)

Then thin Al sheets (3cmx60cm) were set up along the corresponding zero probability positions of the wire grids as illustrated in Fig (05)

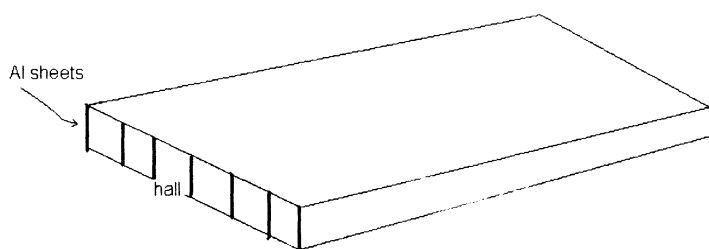


Fig (05)

Classically photons pass through the space between the sheets but the pattern was not changed and was same as in Fig (02) as can be seen in Fig.(06).



Fig (06)

## References:

1. S.S. Afshar, "Sharp complementary wave and particle behaviours in the same welcherweg experiment," *Proc. SPIE* **5866**, 229-244 (2005).
2. S.S. Afshar, "Violation of Bohr's complementarity: One slit or both?" *AIP Conf. Proc.* **810**, 294-299 (2006).