

Difraction is the bending of wave rays when they meet an obstacle to propagation .

Suppose an wave propagating in a medium until it meet a slit in an opaque barrier.

In June 2011 canadian scientist Aephraim Steinberg measured momentum and position of a photon, verifying that it comported itself as an wave even when passing by just on slit.

In 1924, Louis DeBroglie made an important discovery. Considering Einstein's relation

$$\lambda = h/p \quad (\text{is Plank's constant and } p \text{ is momentum}),$$

he demonstraded that the relation faculted the determination of the wave length of any material object. For this equation he earned the Nobel prize in 1929. The hypothesis was confirmed in 1927 by Clinton Davisson and Lester Germer.

Yet the habit of treating with corpuscles hinders until today that people understand that DeBroglie really has demonstrated particles inexistence. There is no duality, as generally affirmed, but only waves. A wave, as the photon, that manifests itself in a limited space, will seem to the observer a particle.

In June 2011 the canadian scientist Aephraim Steinberg measured one photon both position and momentum, verifying that it behaves as an wave even when it traverses just one single slit (<http://phys.org/news/2011-06-quantum-physics-photons-two-slit-interferometer.html>).

Without minimize the importance of Prof. Steinberg's brilliant experiment, we could say that some works are not rigorously necessary.

Fernando Arthur Tollendal Pacheco – [fernandoarthur@gmail.com](mailto:fernandoarthur@gmail.com)

Fernando Antônio Bezerra Tollendal Pacheco - [ftollendal@gmail.com](mailto:ftollendal@gmail.com)

Brasilia (DF) - Brazil