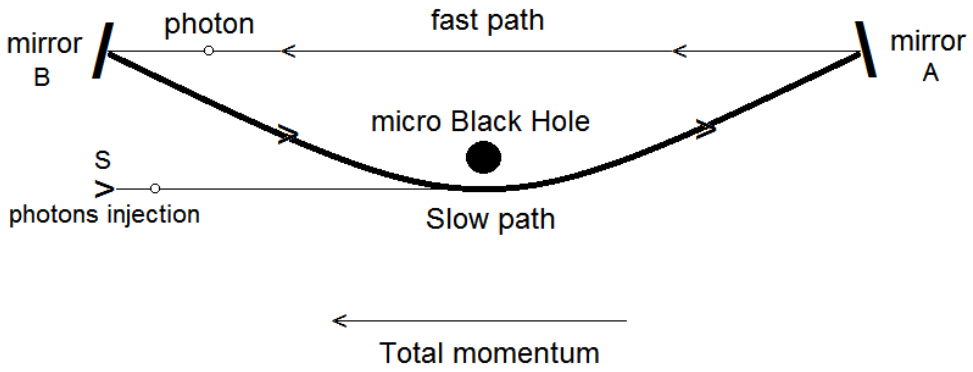
Reactionless drive



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Let me explain this impossible drive ☺.

We have few basic elements : 2 mirrors (A and B) , one micro BlackHole (BH) and one photon source (S). They are all attached to a spaceship.

At first, the system is at rest. Then, we inject photons with source S on the trajectory around the BH. They will get to mirror A, then to mirror B, then near the BH and again on mirror A, B and so on, until they get absorbed somewhere.

Let's consider the momentum P of a single photon. It will push the ship to the left when is created. It will also push the ship to the right when is absorbed and cancel the momentum from launch. The ship can not move. But how do we move ?

Let's now consider the time of photon trajectories. The one from mirror B to mirror A and the one from mirror A to mirror B. The trajectory (B->A) pass near a BH and the time get dilated for this path. The returning path (A->B) is further away from the BH and the time for this path is smaller.

What do that mean ? Well, we move to the left a distance D1=P*Time(B->A)/m and we move to the right a distance D2=P*Time(A->B)/m (P = photon momentum and m = ship mass). We get a D3 also on the left by the BH itself when photons get attracted and slowed down.

Since Time(B->A) is bigger than Time(A->B) => D1 > D2 => we get a total shift in ship position D=D1-D2+D3 for one photon and one complete photon cycle. With good mirrors we can get thousands

of reflections until the photon get absorbed and can no longer change our position. For 1000 photon complete cycles until absorption we get a total distance 1000*D. For X photons injected we get a total movement length L=X*1000*D.

When photons get absorbed somewhere, anywhere, and we do not inject other photons on the trajectory, the ship movement will stop. We move only as long as we have photons on this fast/slow cycle. At the end of the movement we have no momentum left and the ship returns to the previous inertial frame (at rest if we started at rest).

The speed at which we move is dependent of number of photons injected per second and number of reflections we have. Also by the delay we get by the trajectory around BH. After some math, it is also directly dependent of the length between mirror A and mirror B. The maximum speed is given by the maximum number of photons you can put on the fast/slow cycle at the same time.

This type of drive basically generate momentum. Momentum that exists only when we have photons on the fast/slow cycle inside the space ship. Or closed box or closed system or how do you wish to call it. The system does not need to expel anything in order to change his position in space. The energy that it consumes to change its position remain inside like heat. It can be reused to re-generate photons and improve efficiency.

This document is produced to prove that nothing is really impossible (and to keep my email address as the author of the concept ☺).