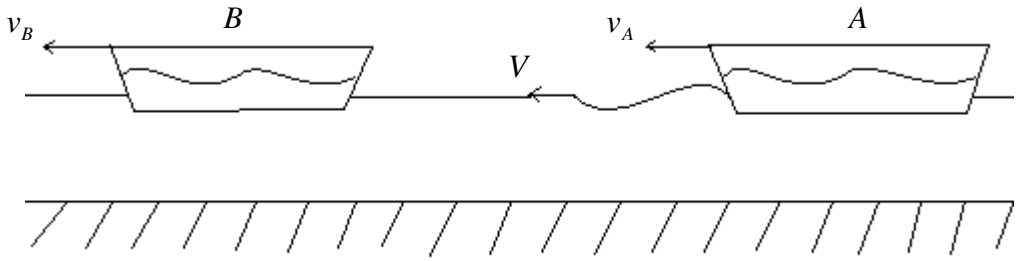
the general science journal

Water and Light Waves

António Saraiva -- 2007-10-05
ajps2@hotmail.com

Abstract – Light waves behaves exactly like water surface waves.



We have a boat A moving at the water surface with velocity v_A relative to the water. There is water and an observer inside the boat. A measures the constant speed V. The velocity of the wave in the water outside the boat remains V so there is no addition of speeds. The relative velocity between the wave and the boat is $V - v_A$ but the observer in the boat can not measure this speed.

Any observer at rest relative to the water always measures a constant speed V.

If there is a moving observer in boat B, moving with the speed, v_B , the relative speed of the wave to the boat is $V - v_B$ but the B observer can't measure this speed.

Inside boat B, there is also water and inside the boat, the observer measure a constant speed V. The speed of the wave inside boat B relative to the water is $V + v_B$.

Light behaves exactly the same way.

For light, $V + v_B$ speed becomes $c^2 \dfrac{V + v_B}{c^2 + V v_B}$ if the speed is frequency dependent and because the frequency changes between the water, both out and inside the boat.

So, the relative $V \pm v$ speeds exists at the same time as the propagation speed remains constant. Very often, the Lorentz formula is used in a wrong way.

There are no mysteries in the universe.