

# Relativistic gravitational effect of relative velocity of material change start above photon scale

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## Abstract

Constancy of the light velocity in areas of space with different gravity implies that relativistic gravitational effect of relative velocity of material change start on the scale above photon.

**Key words:** velocity of light, relativistic gravitational effects of relative velocity

## Introduction

General Theory of Relativity considers light moves through the space with constant velocity regardless upon the strength of gravitation. This implies that at the scale of the photon and below at the scale of Planck relativistic gravitational effect of relative velocity of material change does not exist. Here is proposed that change of gravity does not effect velocity of a photon clock as it effect velocity of an atom clock.

## Methods and Results

We have a “photon clock” made out of two mirrors A and B. Photon is moving from A to B, back to A and so on. One traveling of the photon between A and B is a “tick” of the clock. We take two photon clocks. One photon clock is on the surface of the earth, second is 4200 meters below at the bottom of the mine shaft. Velocity of light is invariant on gravity; both of clocks will “tick” with the same velocity. We take two atomic clocks. One clock we put beside photon clock on the surface and second beside clock that is 4200 meters deep. According to the relativistic gravitational effect second atom clock will in 30 days “tick” faster as the atom clock on the surface for  $\Delta t = 1,23 * 10^{-6} s$  (1).

## Conclusions

Invariance of light velocity on gravity excludes existence of relativistic gravitational effect of relative velocity of material change at the photon scale. Experiment with photon clocks and atomic clocks will give us more experimental data.

## References:

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