

Abstract Submitted
for the APR14 Meeting of
The American Physical Society

Gravity slows light IAN O’SULLIVAN, No Company Provided — The speed of light is measured as a constant number of metres per second. However, a meter is a measure of how far light travels in a second. That is, light always travels as far as it does in a second every second. This is a circular definition. When measured against other things, light speed must change. Gravity is usually described as a consequence of a curve in spacetime. The word “space” has two distinct meanings. In geometry, space is a continuous area. In relativity, “space” refers exclusively to geometric spaces measured with light. “Time” in a relativistic sense also refers exclusively to the passage of time as measured against light. So a curve in spacetime (a relativistic concept) is a gradual deviation in the thing we use to measure geometric spaces and the passage of time, i.e. the speed of light. I show how Newtonian gravity can explain observable phenomena if the speed of light is inversely proportional to the strength of the gravitational field. For example, we would also expect light to refract as it changes speed passing near massive bodies. Boundary conditions are also discussed, for example, very high gravity will slow light to a stop, making it impossible to measure anything against light, giving a gravitational singularity.

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Date submitted: 02 Feb 2014

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