

The True Scale of Atoms

Post by "Martin" of December 25, 2023 at 5:55 AM

Quote

Can we interpret Einstein in way that leaves the void untouched and unaffected, but only the host of forces/matter?

The speed of the measured object in the reference system of the observer, a gravitational field or an accelerated reference system affects the "void" such that results of dimensional measurements in the "void" depend on that speed, the gravitational field or the acceleration. This is the only way how the "void" is affected, not more and not less. As a consequence, the absolute space which was conceivable in classical mechanics is lost. I guess it is that counter-intuitive loss which is disturbing with the theories of relativity. I felt this disturbance, too. When I was an undergraduate student of physics, homework included calculations with the special theory of relativity. These calculations helped to make my intuition catch up with the rational understanding. Solving partial differential equations with boundary conditions can help with sharpening the intuition, too.

Alternatively, we might consider the existence of a not affected master space, which we identify with the "void", within which the geometric space is deformed by speed differences, the gravitational field and acceleration. However, that master space would have no empirical base. But if it helps to wrap our mind around the quirks of the theories of relativity, it might be a useful auxiliary construct.