

Source : <http://astronuklfyzika.sweb.cz/GravitaceB-3.htm>

Description of the paragraph from the textbook RNDr.V.Ullmann + my red notes →

In a sense, the successor of Einstein's efforts to create a unitary field theory, but in a slightly different way, became the American physicist John Archibald Wheeler, who, along with other collaborators, especially Ch. Misner, came from Einstein's original (validated) general theory of relativity. He showed that to **create** a classical unitary field theory (and at the same time more perfect than previous efforts), it is not necessary to introduce any artificial and unjustified changes into the general theory of relativity ((**And Ch. Misner showed that we do not need "creation" or the real one, de facto universe, just paper and pencil...**)) all you have to do is make full use of all the geometric and topological possibilities ((**dimensional curvature**)) that the general theory of relativity provides.

In Chapter 2, we showed that the general theory of relativity overthrew space and time from the status of a kind of "non-participating scene" (scene = **grid, raster, background, grid, and other synonyms**) on which physical events take place, **and made spacetime** ((**crooked spacetime**)) **a direct participant in physical events**. The gravitational **field is, according to OTR, a manifestation of the curvature of empty spacetime** - so we have a kind of "**gravity without gravity**" gravitational, in which matter also appears. ((**Simply put: if we curve a flat empty space-time, we get a field, eg gravitational, in which matter also appears. It "appeared" in a curved flat 3 + 3 dimensional space-time**)).

As shown in §2.5, Einstein's equations of the gravitational field $R_{ik} - \frac{1}{2} g_{ik} R = 8\pi T_{ik}$ have the important property that they describe the behavior not only of the gravitational field ((**which are changes in curvatures of dimensions 3 + 3D**)), but indirectly - despite conservation laws energy and momentum $T^{ik}_{;k} = 0$ and conservation **of its resources**. Therefore, if we take the electromagnetic field ((**ie curvature space-time 3 + 3D; change-transformation of the gravitational field is a change in the change in curvature of space-time dimensions**)) in a vacuum, then from the Einstein equations the gravitational field excited by it...

$$R_{ik} - \frac{1}{2} g_{ik} R = 2 F_{il} F^l_k - \frac{1}{2} g_{ik} F_{lm} F^{lm} \quad (B.7)$$

Maxwell's equations of this electromagnetic field also follow $F^{ik}_{;k} = 0$. **If the curvature of spacetime is caused by an electromagnetic field**, ((**or vice versa, as Ullmann says a few sentences above !!, ie that the field is caused by the curvature of spacetime...**)), then the trace of the Einstein tensor on the left side (B.7) must be equal to zero, which gives $R = 0$ and then the square of the Ricci tensor $R^m_i R^k_m = \delta^k_i \cdot (\frac{1}{2} R_{lm} R^{lm})$ is a multiple of the unit matrix. Einstein's and Maxwell's equations (which are systems of 2nd order equations) can therefore be **combined** into one system of 4th order equations - **Einstein-Maxwell's equations**, which in geometric form contains both Maxwell's electrodynamics (without charges) in curved spacetime and Einstein's equations. **indicating the curvature of spacetime by this electromagnetic field ***. ((**Respectively the curvature of space - time becomes an array**)). The electromagnetic **field** leaves characteristic "traces" on the geometry of space-time ((**respectively the geometry of the curved dimensions of space-time, which leave "traces = states of curvature of dimensions", we call the field**)), from which it can be "known" and whose behavior is determined. The electromagnetic field (which is thus determined by the expression containing the square roots of the Ricci tensor R_{ik}) can therefore be fully described using only gravitational quantities, ultimately using the components of the metric

tensor g_{ik} . Maxwell's equations are then given by the relationship between Ricci's curvature and **the speed at which this curvature changes !!!**; the laws of electrodynamics thus take on a purely **geometric character**. ((Thus: mass-field is the state of n-curvatures of space-time dimensions.)). We get a kind of "**electromagnetism without electromagnetism**", in which the electromagnetic **field is a manifestation of empty curved spacetime**. ((More precisely: in the Euclidean flat INFINITE raster-network 3 + 3D dimensions "if" the local curved state of dimensions floats in it, then it is matter or field.))

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((... Oh, how close is Mr. Vojtěch Ullmann in his explanation to my HDV))

JN, com 06.06.2020