Looking into Universe. 2 2NdV.2_EN

2NdV.2_EN Looking into Universe. 2

Authors: brilliant predecessors in my interpretation. Composed by VVvv. Translated by Google translate, ran by VVvv. Thanks are given to professors Jiri Bicak and Michal Krizek.

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This version is the second part of a series of articles, which was created by extracting from the original zero version "02NdV1_EN Looking into Universe, Part 1" into a separate part. The effort was to systematically reach stages that would describe the consequences of using a simple model of closed space with constant curvature to describe observations
in the space of the Universe as a whole. And order the consequences from simpler to more complex as I found them on my expedition to the distant Universe.

The **Abstract Looking into Universe.2** {**2NdV.2A_EN**} and **Summary Looking into Universe.2** {**2NdV.2S_EN**} are available for this work.

(Notice to reader: The timestamp of the parentheses tells me when the note was either created or reformulated. To keep the versions organized, if I change the text or image then I change the date of version by at least one day. The whole words written in capital letters are words from dictionaries, which I use in a specific meaning, and which I am specifying in my writings. The original files are in Czech, my mother language. If there are discrepancies between the translations, the version in the original takes precedence.)

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A. INTRODUCTION TO PART TWO

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In the first part of Looking into the Universe, we didn’t need any physics yet. We presented only the simplest geometric model of a curved 3D space that could capture Einstein’s idea of the Universe as a self-contained space that must be curved in order to be closed.

We helped us by realizing that our observation in 2D space along the surface of a sphere is the same as in 1D space along a circle, so following a straight line would take us to the starting point from the opposite side. I just called that circle a SUBSTITUTIVE CIRCLE because it substitutes a straight direction in space with constant curvature. If a straight direction were to lead us back to the starting point from the opposite side even in some hypothetical constantly curved 3D space, our observation in it would also have to take place along SUBSTITUTIVE CIRCLES.

The light from the source at the actual location “S” would then have to travel to us observers at the point “P” along the surface of a geometrical figure which I have called “rugball” because its shape reminds us of a rugby ball constantly curved with the vertices “P” and ” S”, and which is created by turning the SUBSTITUTIVE CIRCLE around the connecting line “P-S”, i.e. the secant of the circle. We are still only talking about geometry.

If such a model could be applied to our looking into the Universe, then it would begin to be physics.

But the universe cannot be exactly constantly curved, since unevenly distributed gravity precludes this. Tangential directions from “P” to the “rugball” surface, which would otherwise form an illuminated circle in the sky, would be reduced to discrete directions along which light would travel to us from apparent “Z” positions in the sky, and which would be arranged into a ring. The diameter of such a ring would increase with increasing distance from us to the observed light source “S”, and its center would point to the hidden position “S”.

If such rings could be found in the sky, then it would already be physics.

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On September 6, 2021, during my visit to Mr. Jiri Bicak, professor from the Institute of Theoretical Physics, Faculty of Mathematics and Physics, Charles University in Prague, I received a notice from him, for which I thank him. The so-called gravitational lensing (https://en.wikipedia.org/wiki/Gravitational_lens), which is said to have been predicted already by Einstein, is currently being confirmed by an intensive study of black holes in the Universe.

Local gravitational lensing occurs by the

curvature of space due to local strong gravity.

If the first consequence of the chosen model described in the first part is verified, then it could point to a similar global effect but caused by the

curvature of space due to weak global gravity that holds the Universe together.

The model-predicted multiple observations of objects in the Universe would begin to alert us to the possibility that observing of assumed unique objects may be just an optical effect of our observation. It could be some a kind of optical distortion, which for clarity I will call **"The First Optical illusion in looking into the Universe"**, to distinguish it from the other two, which I will be discuss in this second part.

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Along the SUBSTITUTIVE CIRCLE, we can express the observed distance from us as $\mathbf{z=R\cdot\varphi}$**,** where $\mathbf{R}$ is the radius of curvature of the space [radius of the SUBSTITUTIVE CIRCLE] and $\boldsymbol{\varphi}$ is the distance along the arc of the circle measured in arc measure with the origin at our point of observation. And the speed of moving away (or moving closer) of fixed points on the circle, for which **φ** is constant but only the radius of the circle R increases (or decreases), we can then write as the time change of the distance along the arc of this circle **dz/dt= dR/dt•φ**, and by marking **dR/dt** with the symbol ΔV0, as ΔV= ΔV0 **•φ**.

A spherical coordinate system, in which the direction of observation is determined by the combination of two central angles, has proven to be advantageous for describing our observation. We also realized that all our observations seem to be projected onto a plane perpendicular to the direction of observation, which I call the PLANE OF OBSERVATION. And since we can generally do our observations in all different directions, we can replace this plane with what we call the OBSERVATION BUBBLE, which completely surrounds us as observers.