**Plamen L. Simeonov**

**Yet another time about time … Part I: An essay on the phenomenology of physical time**

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Time is my main research subject since 1990. From the phenomenology perspective we can say that time is what we measure with clocks. With clocks we measure duration of motion in space. Motion happens in space only and time is its duration. Let's imagine photon is moving from point A to point B in space. Each Planck distance which photon pass correspond exactly one Planck time. The duration of photon motion from A to B is the sum of Planck times:

$$t = t_{P1} + t_{P2} + \ldots + t_{PN} = \sum_{i}^{N} t_{Pi} \qquad (1).$$

In this view time is only a mathematical parameter of motion, namely, numerical order of motion. This is so called ***fundamental time***. When we measure fundamental time with clocks we will get ***emergent time*** which is duration. Existence of duration requires measurement from the observer, no measurement means no duration.

Idea of existence of some physical time in which motion happens seems not right. There is no ***physical time***. Universe exists in ***Einstein's NOW***: "*…there is something essential about the NOW which is just outside the realm of science. People like us, who believe in physics, know that the distinction between the past, present and future is only a stubbornly persistent illusion."* (2).

(1). Fiscaletti, D. and Sorli, A.: "Perspectives of the Numerical Order of Material Changes in Timeless Approaches in Physics", Foundations of Physics 45, 2, 105-133 (2015).

(2). Amrit Sorli, Vlad Koroli, Andrei Nistreanu, Davide Fiscaletti. Cosmology of Einstein's NOW. *American Journal of Modern Physics.* Special Issue: Insufficiency of Big Bang Cosmology. Vol. 5, No. 4-1, 2016, pp. 1-5. doi: 10.11648/j.ajmp.s.2016050401.11