

The Triumph of Elementary Physics and Engineering in Cosmology

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FM Sanchez*

Universite Paris 11 (formerly), 20 Av. d'Ivry, 75013 Paris

***Corresponding Author:** FM Sanchez, Universite Paris 11 (formerly), 20 Av. d'Ivry, 75013 Paris.

The I.S. of units implies a damaging separation between engineers and theoreticians. In particular, the electrical units are useless. Thus, in cosmology, we must first calculate what distance corresponds to three universal constants excluding the speed of light c , too slow to ensure cosmic coherence. In the standard triplet G, c, \hbar , which defines mass, length and Planck time (the last two constituting the "Planck wall"), the *first choice* is to replace c with the average mass of the 3 main particles of physics atomic (electron, proton, neutron), and calculate a length, since it is what is really measured in the Hubble-Lemaître law. This gives the half of 13.8 billion light-years (see French wikipedia, "analyse dimensionnelle"). This invariable length, calculated in the first three minutes of the sabbatical year 1997 (Univ. Paris 11), is now identified (2023) not only with the Hubble radius, directly measured, but also with the product by c of the time characteristic of standard cosmology, which cannot therefore be considered no more as the "age" of the Universe, but as the time constant of exponential recession, the *unique parameter of steady-state cosmology, so which has also predicted the recession acceleration*. This "3-minutes formula" implies that the critical cosmic condition, observed with surprise around 2000, does not need any inflation, it corresponds to a very simple relationship. It is the equalization of the diametral area of the visible Universe compared to the Planck area (the entropy of Bekenstein-Hawking of the visible Universe considered as a black-hole) with the perimeter of the Universe, relative to its wavelength, which pushes back the "wall of Planck" by a factor of 10^{61} , enlightening the vacuum energy enigma. By separating the electron from the proton-neutron couple, another relation of the same "holographic" type extends to the wavelength of the thermal background, with a precision which excludes any hazardous numerology. The great quanta-gravitational unification, vainly sought for a century, is therefore within everyone's reach, and is deposited in a sealed envelope at the Paris Academy of Sciences (March 1998). We have thus predicted that the far field Universe must be identical to the near domain, which is indeed indicated by the first observations of the JWST. This marvel of technology thus consecrates the triumph of physical common sense and the talent of engineers over the theoreticians drowned in their formalism who imposed this illusion of the Expansion of the Universe and the Initial Big Bang. The JWST must know observe the Universe isothermy (<http://holophysique.free.fr>).