

Abstract Submitted
for the APR09 Meeting of
The American Physical Society

Hubble Refshift due to the Global Non-Holonomy of Space

DMITRI RABOUNSKI — In General Relativity, the change of the energy of a freely moving photon should be the solution to the scalar equation of the isotropic geodesic equations, which manifests the work produced on the photon being moved along the path. I solved the equation in terms of physical observables (Zelmanov, Phys. Doklady, 1956, v.1, 227), and in the large scale approximation, i.e. with gravitation and deformation neglected in the space, while supposing the isotropic space to be globally non-holonomic (the time lines are non-orthogonal to the spatial section, a condition manifested by the rotation of the space). The solution is $E=E_0\exp(-H^2AT/c)$, where H is the angular velocity of the space (it meets the Hubble constant $H_0=c/A=2.3\times 10^{-18}\text{s}^{-1}$), A is the radius of the Universe, $T=L/c$ is the time of the photon's travel. So a photon loses energy with distance due to the work against the field of the space non-holonomy. According to the solution, the redshift should be $z=\exp(H_0L/c)-1\approx H_0L/c$. This solution explains both the redshift $z=H_0L/c$ observed at small distances and the non-linearity of the empirical Hubble law due to the exponent (at large L). The ultimate redshift, according to the theory, should be $z=\exp(\pi)-1=22.14$.

Dmitri Rabounski

Date submitted: 07 Nov 2008

Electronic form version 1.4