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Hubble Redshift, Explained in both a Static Universe and an Expanding/Compressing Universe DMITRI RABOUNSKI — In my recent study (2009 APS April Meeting; Progress in Phys., 1/2009), I showed that a photon loses energy with distance due to the work done against the non-holonomity/rotation field of the isotropic space (photon home space, rotating with the velocity of light). This is due to the solution $E=E_0\exp(-H^2AT/c)$ for the scalar geodesic equation of a photon (the equation of energy), where deformation of space is neglected (a static universe). Here H is the angular velocity of the isotropic space (equal to the Hubble constant $H_0=c/A$), A is the radius of the Universe, T=L/c is the time of the photon's travel. The resulting redshift $z=\exp(H_0L/c)$- ($z\approx H_0/c$ at small distances) matches the observed Hubble law. Now I obtain the respective solutions in a deforming universe. The solutions reveal: 1) in an expanding unverse the redshift increases faster with distance than in a static case; 2) in a compressing universe the blueshift increases with distance slower than the redshift due to the space non-holonomity, so the blueshift changes to the redshift at a large distance compared to the radius of the Universe. The results have been presented in detail in Zelmanov Journal, v.2, 2009.

Dmitri Rabounski

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