

Abstract Submitted
for the APR14 Meeting of
The American Physical Society

Uniformity of CMB as a non-inflationary geometrical effect
BRANISLAV VLAHOVIC, COSMIN ILIE, MAXIM EINGORN, North Carolina Central University — The conventional LambdaCDM cosmological model supplemented by the inflation concept explains the Universe evolution well. However, there are still a few concerns: New Planck data impose a non-trivial constraint on the shape of the inflation potential, which excludes many inflationary models; the dark matter is not detected directly; and the dark energy is not described theoretically on a satisfactory level. Within the FLRW formalism we consider a model of the closed Universe (with the spherical spatial topology), filled with the additional perfect fluid with the constant parameter $-1/3$ in the linear equation of state (which may be called quintessence). We compare this model with the standard LambdaCDM and answer the following question: can this additional fluid lead to light traveling between the antipodal points during the current age of the Universe? This possibility could strongly affect the inflation scenario which may completely lose its necessity. This work is supported by NSF CREST (HRD-0833184) and NASA (NNX09AV07A).

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Date submitted: 10 Jan 2014

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