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Abstract

Jamal Mimouni

Department of Physics, Faculty of Science, LPMPS
Mentouri University, 25000, Constantine, Algeria

"Light: the Colorful Universe"

Light also has a cosmic history. We can still follow this history from the time the light broke out of its plasmic cocoon some 400,000 years after the Big Bang till now as it is freely streaming through the cosmos carrying intimate information on the past events the Universe went through. This oldest light around is everywhere as it permeates all the space including our bodies, our lungs and our brains. It has become a subdued radiation due to space expansion in the microwave range thus extremely low energy and it is called indeed the Cosmic Microwave Background or CMB. This momentous discovery made in 1965 mostly by accident is the smoking gun of a hot phase the early Universe went through which is part of the standard Big Bang theory.

Light is also synonymous of colors. Let us look at the Universe through colored eyes. To each snapshot of the Universe at a given wavelength there is a particular cosmic scene. We shall discuss the physics story behind each scene starting from the shortest wavelength uncovering a "violent" universe to to the longest ones describing a softer more subdued one.