

Latest researches have shown that Universe is in an acceleration expansion and the value of the measure of the Hubble constant depends on the astrophysical object on which the measurement is made. Scientists have introduced the notion of dark energy to explain why current gravitation could not decelerates expansion of the Universe. Added to it, galaxy rotation curve can be explained only by presence of a dark and unknown matter in each galaxy permitting, according to scientists, to explain formation of great structures in the Universe.

Thus, dark energy and dark matter are one of the greatest mystery of the beginning of this 21st century.

Moreover, how, fundamentally, mass distorts space-time? How to explain, fundamentally, the equality between gravitational and inertial masses?

This paper proposes to establish some theories to explain origin of inertia and by consequent, explain how mass distorts space-time and creates gravitational field.

This paper proposes also to establish a theory explaining origin of accelerated expansion of the Universe as well as a theory to explain nature of dark matter without resorting to define new kind of energy or particle. Consequences of these theories, this article proposes to model evolution of the Universe's scale factor and permit to retrieve current value of the cosmological constant. Others results are retrieved from these theories and finally, this article proposes a model able to explain galaxy rotation curve as well as the evolution of their characteristic size related to the evolution of scale factor of the Universe and regardless existence of dark matter as unknown matter or regardless MOND theory.

This article is in the framework of the Journal Nature Physics in cosmology area. Indeed, this article proposes a new vision of possible nature of dark matter and dark energy unseen until now. This article is a pure theoretical physic works based on current knowledge and try to give explanations on broad range of cosmological topics from nature of inertial and gravitational masses to the need to redefining gravitational field to explain some astrophysical results<sup>1</sup>.

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<sup>1</sup> Retrieved results: Positions of photon sphere or innermost stable circular orbit in the case of non-rotary and electrically neutral central mass like a Schwarzschild black hole; calculation of apsidal precession of an astronomical body's orbit in case of weak field approximation; literal value of cosmological constant...