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## ANTIMATTER AND DARK MATTER : GALAXY STRUCTURE , FLARES AND COSMIC RAYS

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Many essential paradoxes in the mechanical balance of the Galaxy are highlighted. We propose a unique and synthetic interpretation, including a cosmological theory of the origin of the observed cosmic rays, especially at the highest energies. It involves MATTER-ANTIMATTER ANNIHILATION in the median plane of the Milky Way, as a source of "DARK MATTER". We discuss the structure and balance of the Galaxy, seen as made of two parallel disks of matter versus antimatter dominance, and opposed by the repulsion of an annihilation gas, settled in the equator disk. The suppression of antimatter in the Universe, just after the "Big-Bang", is thus questioned (from T invariance). ULTRA-RELATIVISTIC THERMODYNAMICS of cosmic rays are then settled. The rhythmic emissions of "Gamma-Ray Bursts" and other flares are easily explained. Various stringent tests tend to confirm this theory : pointedly, the now classical energy behaviour of the incident flux of energetic cosmic rays is easily derived as a power law, possibly with expected exponents -2.5 and -3 (main dependence, including the first knee). Ultra-high energies, further, are easily attainable, with no necessary restriction of the "GZK" kind, for instance. Beyond  $10^{20}$  eV, rather, a new break is still thus made feasible. Beyond CP invariance at stake, T reversal is axiomatically discussed, as well as the very nature of time in Special Relativity.

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