DOI: 10.4172/2329-6542-C7-034

4th International Conference on

ASTROPHYSICS AND PARTICLE PHYSICS

December 03-05, 2018 | Chicago, USA

Robert J Martineau

NASA Goddard Space Flight Center, USA

Photodynamics: How massive photons, gravitons, gluons and neutrinos manage to travel at the speed of light

Our present understanding of how particles travel at the speed of light is all wrong. This is particularly apparent when the experimental facts of neutrino oscillation have to be denied to preserve our present understanding of relativity. Massive neutrinos do travel at the speed of light. The experimental facts are correct. The theory is wrong. The source of the problem is the unjustified application of $E=mc^2$ to particles that travel at the speed of light. We first provide a rigorous proof that $E=mc^2$ and its associated energy momentum theorem do not apply to any particle that travels at the speed of light. This means that relativity; the foundation of modern physics does not and has never possessed a valid relativistic dynamics for such particles. To remedy this shortcoming we derive the laws of photodynamics whose equations are similar to but different from the Einstein equations in important respects. We use photodynamics to resolve three outstanding problems in physics: in relativity, the motion of massive particles at the speed of light; in cosmology, how cooling CMB photons lose energy for 13.8 billion years without slowing down; in neutrino astrophysics, neutrino oscillation at the speed of light. Along the way, we correct historical misconceptions like the "fact" that photons have a zero rest mass and can only travel at the speed of light. The exact opposite is the case. In fact, all particles must have mass in order to exist. We also describe the exciting new property of self-propulsion, akin to rocket propulsion in space, wherein a particle like a photon consumes its internal energy in order to generate an internal force which accelerates it in the direction of flight until all its energy has been consumed and it has attained the speed of light.

Biography

Robert J Martineau received an MSEE and a PhD in Physics (relativity). After teaching physics and working a number of years in the defense industry developing HgCdTe infrared detectors for missile defense programs, he joined NASA Goddard Space Flight Center. There he set up manufacturing facilities and designed, built, qualified and delivered HgCdTe focal plane arrays for the CIRS/Cassini mission. He served as the GSFC HgCdTe detector expert on a variety of programs like GOES, MODUS, NGST, CIRS and JWST. He retired in 2006 and returned to his first love, doing research in theoretical physics. This paper presents some of his findings from these efforts.

rjl.martineau@yahoo.com

Notes: