

Abstract Submitted  
for the APR14 Meeting of  
The American Physical Society

**Does Antimatter Appear Dark?** WALTON PERKINS, Retired —

According to Standard Model the photon is an elementary particle and a gauge boson. However, there is another model of the photon with very interesting properties. In 1932 de Broglie suggested that the photon is a composite particle formed of a neutrino-antineutrino pair. This theory, now known as the “neutrino theory of light,” has evolved over the years. It still has problems in that it requires massless 2-component neutrinos, while there are indications that neutrinos have mass. In the composite photon theory the photon is  $\gamma = \nu_L \bar{\nu}_R$  (electron neutrinos), while the antiphoton is  $\bar{\gamma} = \nu_R \bar{\nu}_L$ , two particles that have never been observed. Since the neutrino-electron interaction is V-A, the antiphoton neutrinos have the wrong helicity to interact with electrons, rendering the antiphotons undetectable. Conversely, in an antimatter world, for which the neutrino-positron interaction is V+A, photons do not interact with positrons. Thus, antimatter stars and galaxies would appear dark to us, and they would not even reflect light from matter stars.

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Date submitted: 05 Jan 2014

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