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High Energy Physics - Phenomenology

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A.V. Kuznetsov, N.V. Mikheev, A.V. Serghienko (Yaroslavl State (P.G. Demidov) University, Russia)

A decay of the ultra-high-energy neutrino

\$\nu e \to e^- W^+\$ in a magnetic field

and its influence on the shape of the

(Submitted on 4 Oct 2010)

neutrino spectrum

The width of the neutrino decay into the electron and \$W\$ boson in a strong external magnetic field is obtained from the imaginary part of the neutrino self-energy. This result corrects the formulae existing in the literature. The mean free path of an ultra-high energy neutrino in a strong magnetic field is calculated. An energy cutoff for neutrinos propagating in a strong field is defined.

 Comments: 8 pages, LaTeX, 2 EPS figures, based on the talk presented by A.V. Kuznetsov at the XVI International Seminar Quarks'2010, Kolomna, Moscow Region, June 6-12, 2010, to appear in the Proceedings
Subjects: High Energy Physics - Phenomenology (hep-ph); High Energy Astrophysical Phenomena (astro-ph.HE)
Report number: YARU-HE-10/02

Cite as: arXiv:1010.0582v1 [hep-ph]

Submission history

From: Alexander V. Kuznetsov [view email] [v1] Mon, 4 Oct 2010 13:37:23 GMT (48kb)

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