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Magnetic field in Neutron stars, vacuum birefringence consequences

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Vacuum in presence of magnetic field exhibits birefringence. We have obtained this effect from linear correction of dispersion relation of photon travelling perpendicular to the magnetic field valid even for magnetic fields close to $B_c = 10^{13}$ G.

Although this phenomenon has not been yet detected evidence of this effect has been reported for neutron star RX J1856.5–3764 by Mignani et al.. In the light of this finding we analyze our results.

In this context we discussed possible experiments in lab with pulsating laser beams.

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