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Pseudoscalar-photon mixing in an expanding Universe

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We establish the equation of motion of pseudoscalar particles coupled to an electromagnetic field in a classical gravitational background through the use of conformal time and flat geometry. We show that in general the expansion of the universe leads to larger mixing than in a stationary universe. We also show that for a broad range of parameters, one can obtain a resonance mixing, i.e. a region in which the mixing becomes maximum.

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