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## Extended axion electrodynamics: Optical activity induced by nonstationary dark matter

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### Abstract

We suggest a new self-consistent Einstein-Maxwell-axion model based on the Lagrangian which is linear in the pseudoscalar (axion) field and its four-gradient and includes the four-vector of macroscopic velocity of the axion system as a whole. We consider extended equations of axion electrodynamics and the modified gravity field equations and discuss nonstationary effects in the phenomenon of optical activity induced by axions. © 2012 Pleiades Publishing, Ltd.

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