

Optical activity induced by curvature in a gravitational pp-wave background

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Abstract

We study the optical activity induced by curvature. The optical activity model we present has two phenomenological gyration parameters within which we analyse three model cases, namely, an exactly integrable model, the Landau-Lifshitz model and the Fedorov model; the latter two are solved in the short-wavelength approximation. The model background is a gravitational pp-wave. The solutions show that the optical activity induced by curvature leads to Faraday rotation.

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