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Propagation of gravitational waves in strong magnetic fields

Bamba K., Nojiri S., Odintsov S.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

© 2018 American Physical Society. The propagation of gravitational waves is explored in the cosmological context. It is explicitly demonstrated that the propagation of gravitational waves could be influenced by the medium. It is shown that in the thermal radiation, the propagation of gravitational waves in general relativity is different from that in the scalar-tensor theory. The propagation of gravitational waves is investigated in the uniform magnetic field. As a result, it is found that cosmic magnetic fields could influence the propagation of gravitational waves to a non-negligible extent. The corresponding estimation for the spiral galaxy NGC 6946 effect is made.

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