

Gravitational Wave Solutions in Modified Gravity Theories

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Abstract : In this paper, we formulate the wave equation in modified theories, particularly in $f(R)$ theory, scalar-tensor theory, and metric palatine $f(X)$ theory. We solve the wave equation in each case and try to find maximum possible solutions in the form polarization modes. It is found that modified theories present at most six modes however the mentioned metric theories allow four polarization modes, two of which are tensor in nature and other two are scalars.

Keywords : gravitational waves, modified theories, polariozation modes, scalar tensor theories

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