

Generation of Gravitational Waves by a Standing Electromagnetic Wave

A. N. Morozov ¹ V. I. Pustovoit ² I. V. Fomin ¹

¹*Department of Physics, N. E. Bauman Moscow State Technical University, 2nd Baymanskaya ul. 5, str. 1, Moscow, 105005, Russia*

²*Scientific and Technological Centre of Unique Instrumentation of the Russian Academy of Sciences, Moscow, 117342, Russia*

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Abstract—The process of generating gravitational waves by a standing electromagnetic wave is considered. The description of gravitational waves coupled with the electromagnetic field is carried out on the basis of linearized Einstein gravity. It is shown that such gravitational-electromagnetic waves inside a Fabry-Perrot resonator lead to generation of the usual high-frequency transverse-traceless gravitational waves which propagate in two mutually opposite directions in empty space outside the resonator. A comparison of gravitational waves coupled with the electromagnetic field and free waves in empty space is carried out.

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