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Wave-optics limit of the stochastic gravitational-wave background

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The stochastic gravitational waves background is a rich resource of cosmological information, encoded both in its source statistics and its anisotropies induced by propagation effects. During their journey, the gravitational waves constituting the stochastic background encounter cosmic structures, which are able to modify the observed signal. According to the ratio between the wavelength of the wave, and the matter overdensities typical length-scale, interference and diffraction effects may arise, possibly boosting the signal's amplitude or inducing a non-trivial polarization pattern. In this talk I will present my results about the wave-optics limit of the stochastic gravitational wave background, and describe how we can use them to gain information about the matter content of the Universe.

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