

# Gravitational Lensing of Gravitational Waves: Effect of Microlensing Population

*Monday, 1 February 2021 23:55 (10 minutes)*

In this work, we investigate the effect of microlensing in strongly lensed gravitational wave signals due to the population of microlenses present in lensing galaxies. We consider a wide range of realistic strong lens magnification and the corresponding density values of the microlens population. We find that the effects of microlensing become increasingly significant with the increase in the strong lens magnification for both minima and saddle type of images. Hence, for notable microlensing features in the gravitational wave signals, the strong lensing magnification also needs to be substantial. The mismatch analyses suggest that only in very rare scenarios, the waveforms will be missed; otherwise, only its parameter estimation will be affected. We also study the effects of different IMFs (Salpeter and Chabrier) on the amplification curve caused by the corresponding microlens population.

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