Title:	Gravitational lensing of core-collapse supernova gravitational wave signals
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Abstract:	We discuss the prospects of gravitational lensing of gravitational waves (GWs) coming from core-collapse supernovae (CCSN). As the CCSN GW signal can only be detected from within our own Galaxy and the local group by current and upcoming ground-based GW detectors, we focus on microlensing. We introduce a new technique based on the analysis of the power spectrum and association of peaks of the power spectrum with the peaks of the amplification factor to identify lensed signals. We validate our method by applying it on the CCSN-like mock signals lensed by a point-mass lens. We find that lensed and unlensed signals can be differentiated using the association of peaks by more than one sigma for lens masses ML>150 M⊙. We also study the correlation integral between the power spectra and the corresponding amplification factor. This statistical approach can differentiate between unlensed and lensed signals for lenses as small as ML~15 M⊙. Further, we demonstrate that this method can be used to estimate the mass of a lens if the signal is lensed. The power spectrum-based analysis is general and can be applied to any broadband signal and is especially useful for incoherent signals.
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