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Gravitational Wave Production right after a Primordial Black Hole Evaporation

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We discuss the footprint of evaporation of primordial black holes (PBHs) on stochastic gravitational waves(GWs) induced by scalar perturbations. We consider the case where PBHs once dominated the Universe but eventually evaporated before the big bang nucleosynthesis. The reheating through the PBH evaporation could end with a sudden change in the equation of state of the Universe compared to the conventional reheating caused by particle decay. We show that this "sudden reheating"by the PBH evaporation enhances the induced GWs, whose amount depends on the length of the PBH-dominated era and the width of the PBH mass function. We also explore the possibility to constrain the primordial abundance of the evaporating PBHs by observing the induced GWs. This presentation will be based on our paper, arXiv:2003.10455.

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