



量子物理学・ナノサイエンス第 340 回セミナー

Gravitational Waves Induced by Curvature Perturbations - Effects of Matter-Radiation Transition -

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日程 : 7月8日(金) 16:00-18:00

場所 : Zoom*

概要

In the coming age of gravitational-wave cosmology, the gravitational waves (GWs) induced from the primordial curvature perturbations by the non-linear effects in General Relativity are interesting probes of the early Universe. In particular, strong induced GWs can be produced in the primordial-black-hole scenario and the reheating scenario with a sudden change of the equation of state of the Universe. After a pedagogical review part, I will discuss the effects of the early matter-dominated (MD) era and its transition to the radiation-dominated (RD) era on the induced GWs. We find that the strength of the induced GWs significantly depends on the time-scale of the transition from the MD era to the RD era. In the standard case, the enhancement of the induced GWs reported in the literature is lost during the transition. On the other hand, a previously missing contribution significantly enhances the induced GWs when the transition is sufficiently quick. We discuss a few examples realizing such quasi-sudden reheating scenarios and future observational prospects.

* 本 ZOOM ミーティングに参加する

<https://zoom.us/j/99566262824?pwd=MXZITVM2eWYyL3FIIdmtmVks5R2ZUQT09>

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