

[HOME](#) > [セミナー・研究会 Seminar & Workshop](#) > [Seminar](#) > Recent progress on infrared issues in inflationary universe (in English)

[お知らせ](#)

[センター長挨拶](#)

[研究グループ](#)

[メンバー Member](#)

[セミナー・研究会 Seminar & Workshop](#)

[論文一覧 Preprint](#)

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[J-PARC分室](#)

[理論センタープロジェクト](#)

[kek member only](#)

[アクセスマップ](#)

[リンク](#)



HIGH ENERGY ACCELERATOR RESEARCH ORGANIZATION  
THEORY CENTER

## Seminar

# Recent progress on infrared issues in inflationary universe (in English)

SPEAKER : Dr. Yuko Urakawa (Nagoya University)

DATE : July 14(Thurs.) 15:30~

PLACE : Kenkyu Honkan 1F, meeting room 1

It has been known that a naive computation of loop corrections in inflationary universe gives rise to a pathologically large enhancement of the infrared (IR) contributions. In this talk, I will overview the recent progress on the IR issues during inflation. In particular, for the adiabatic and tensor perturbations, we can show that the IR pathology goes away, as far as we preserve the invariance under the large gauge transformations, which diverge at the spatial infinity. I also show a couple of other consequence of the invariance under the large gauge transformation; 1) the consistency relations, which connect  $(n+1)$ -point functions with one soft leg and  $n$ -point functions 2) the conservation of the curvature perturbation at large scales in the presence of the radiative corrections of heavy fields.

[ページトップへ ▲](#)

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高エネルギー加速器研究機構 〒305-0801 茨城県つくば市大穂1-1

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