Welcome to

Nov. 4 — Nov.8, 2024

SAGA-YONSEI JOINT WORKSHOP XXI

https://yhep-indico.yonsei.ac.kr/event/607/

11/04 ~ 11/08

VENUE :
YONSEI UNIVERISITY
ROOM 327, SCIENCE BLDG.

2024

INVITED SPEAKERS

Prof. Tachibana Motoi (Saga Univ.)
Prof. Takahiro Fusayasu (Saga Univ.)
Prof. Tomo Takahashi (Saga Univ.)
Prof. Chang Dong Roh (Sungkyunkwan Univ.)
Prof. Jong-Chul Park (Choongnam National Univ.)
Dr. Seung-Joo Lee (IBS/CTPU)

HOSTED BY

Yonsei University

国立大学法人 佐賀大学

National Research Foundation of Korea

BrainKorea21 FOUR

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Registration

Participants

Register

Participants

- Chang Dong Rho
- Chanho Kim
- Dongwoon Kim
- Fumiya Okamatsu
- Gihwan Nam
- Haeun Jang
- Hanil Bae
- Haruka Sakobun
- Hwidong Yoo
- Hyuna Kim
- Jaeyoung Kim
- JeongHwan Park
- Jiyeon Kim
- Jong-Chul Park
- JongKuk Min
- Joon Young Lee
- Kyeongpil Lee
- Latsamy Xayavong
- Masato Yokoyama
- Mingi Park
- Motoi Tachibana
- Nanoka Okada
- Natsumi Watanabe
- Sang Chul Hyun
- Sato Kikuko
- Seonghyun Jeong
- Seoyun Jang
- Seung-Joo Lee
- Seunghak Lee
- Shimasaki Yuuta
- Sora Yamashita
- Sungjin Cho
- Tae-Geun Kim
- Takahiro Fusayasu
- Tomo Takahashi
- Wanda Isnard
- yeji PARK
- Yongkyu Kim
- Youngjoon Kwon
- Yun Eo
- YUSUKE TOMIYASU
- YUTO OSHIMA
- Yuyeong Jeong

Tuesday, 5 November

10:00 → 12:00 **Lecture 1 and seminar**

10:00 **Lecture 1 Study of QCD matter -Nambu meets BCS-** 1h 30m

Speaker: Prof. Tachibana Motoi (Saga Univ.)

11:30 **Seminar: Physics highlights from Belle II** 30m

Speaker: Prof. Youngjoon Kwon (Yonsei Univ.)

12:00 → 14:00 **Lunch** 2h

14:00 → 15:50 **Lecture 2 and Discussions**

14:00 **Lecture 2 (Title TBA) on astroparticle physics experiment** 1h 30m

Speaker: Prof. Chang Dong Roh (Sungkyunkwan Univ.)

15:30 **coffee break and discussions** 20m

15:50 → 19:05 **Ahn Sae-Hee Memorial Student Session**

15:50 **Gravitational Waves from Flaton Fields in Thermal Inflation** 18m

We investigate the stochastic gravitational wave signatures produced during first-order phase transitions of flaton fields in thermal inflation. Thermal inflation, potentially occurring at energy scales ranging from supergravity-motivated scenarios (>10^9 GeV) to the electroweak scale, involves flaton fields characterized by large vacuum expectation values and nearly flat potentials. We analyze prototypical potential forms of these fields with two gauge group scenarios (U(1) and SU(2)) to explore how different particle content affects the gravitational wave spectrum. We identify parameter regions where these signals fall within the sensitivity range of future gravitational wave detectors, providing both a novel approach to probe thermal inflation models and specific predictions for the frequency spectrum and amplitude of the stochastic gravitational wave background produced in these scenarios.

Speaker: Ms Yeji Park (Yonsei Univ.)

Thursday, 7 November

10:00 → 12:00 **Lecture 4 and Seminar**

10:00 **Lecture 4 (Title TBA) on dark matter physics** — 1h 30m

Speaker: Prof. Jong-Chul Park (Choongnam National Univ.)

11:30 **Seminar: Nuclear structure input to low-energy precision tests of the Standard Model via superallowed 0+->0+ Fermi beta decay** — 30m

Speaker: Dr Latsamy Xayavong (Yonsei Univ.)

12:00 → 14:00 **Lunch** — 2h

14:00 → 15:50 **Lecture 5 and discussions**

14:00 **Lecture 5 The String Landscape and the Swampland Program** — 1h 30m

Speaker: Dr Seung-Joo Lee (IBS/CTPU)

15:30 **coffee break** — 20m

15:50 → 18:29 **Arthur Becker Memorial Student Session**

15:50 **Runaway Potential with Inverse Non-minimal Coupling to Unify Inflation and Late-Time Acceleration** — 18m

We considered a situation where a Ricci scalar R and the scalar field φ are inversely coupled each other by the term 1/2ξφ^{-n}R, where ξ denotes the strength of non-minimal coupling. This term is motivated to make Einstein-frame inflationary potential flat in a small limit of scalar field value, to guarantee high number of e-folds during inflation to cure limitations that a standard Big Bang itself cannot resolve. (e.g. flatness problem, horizon problem, etc.) On the other hand, the potential V (φ) = V0φ^{−n} is one of simplest models for explaining late-time acceleration due to runaway behavior at the large field limit, which in addition possesses attractor-like solution and well motivated by particle physics models. These two facts motivated us to study a model where a scalar field φ is inversely non-minimally coupled to the gravitational sector with aforementioned runaway potential, to explain both inflationary observations and late-time cosmic acceleration. As an inflationary stage, it is confirmed that choosing most of parameter sets (V0, ξ, n) enables us to satisfy inflationary constraints given by the latest observations from Planck-BICEP/Keck. Our setup can also explain late-time acceleration (especially showing behavior like cosmological constant in a neighborhood of current Universe (w ≃ −1) and is compatible with several constraints for successful Big Bang scenario for some suitable initial conditions. We especially discussed necessary theoretical criteria for choosing adequate initial conditions by the existence of Hubble drag, which plays a role to limit the velocity of a quintessence field during its evolution.

Speaker: Mr Sang-Chul Hyun (Yonsei Univ.)

Ahn, Sae Hee

9-10th President
July 1980 - July 1988

1962.02-1968.08	Yonsei University Dean of Science
1968.09-1969.06	University of Southern Illinois Visiting Professor
1971.03-1973.02	Yonsei University Planning Director
1975.07-1980.04	Yonsei University Dean of Academics