

# Research at CTPU

The 1st CAPP-CTPU-CUP collaboration meeting

Chang, Sanghyeon

CTPU

August 11, 2018

We are

Center for Theoretical Physics of Universe  
Particle Physics Theory and Cosmology Group

CTPU-PTC

# Members

- Director
- 4 faculties
- 17 Postdocs
- 3 Admin staffs
- 1 technician

# Faculty



**Kiwoon Choi**  
Director

Physics Beyond the Standard Model, Supersymmetry,  
Particle Cosmology, Axion



**Sanghyeon Chang**

Physics Beyond the Standard Model, Particle  
Cosmology, Axion, Extra-dimensions



**Kenji Kadota**

Particle Cosmology, Early Universe, Particle  
Phenomenology, Supersymmetry, Cosmology



**Kyu Jung Bae**

Supersymmetry, Early Universe, Axion, Collider  
Physics



**Chang Sub Shin**

Particle Cosmology, Early Universe. Baryo/Lepto-  
genesis

Our group is interested in broad research subjects in theoretical particle physics as well as the related cosmological and astrophysical phenomena.

One of the subjects we are emphasizing in these days is the physics of dark sector, e.g. dark matter, dark gauge interactions, and very weakly interacting light particles such as axions or axionlike particles.

Our research activities cover also model building for new physics phenomena, study of collider signals of new physics models, physics of CMB and gravitational waves related to early universe inflation and/or phase transitions.

# Postdocs and Technician



**Yang Hwan Ahn**  
Physics Beyond the  
Standard Model



**Andrew Spray**  
Physics Beyond the  
Standard Model



**Doyoun Kim**  
Collider Physics



**Zhuoni Qian**  
Collider Physics



**Ayuki Kamada**  
Particle Cosmology



**Menchao Zhang**  
Physics Beyond the  
Standard Model



**Ryusuke Jinno**  
Particle Cosmology



**Jeff Kost**  
BSM, Cosmology



**Thomas Flacke**  
Physics Beyond the  
Standard Model



**Patrick deNiverville**  
Neutrino, BSM



**Sushant Raut**  
Neutrino, BSM



**Takumi Kuwahara**  
BSM, Supersymmetry



**Tae Hyun Jung**  
Physics Beyond the  
Standard Model



**Gansukh  
Tumurtushaa**  
Cosmology



**Eibun Senaha**  
Physics Beyond the  
Standard Model



**Wonyoung Cho**  
Computer simulation



**Fapeng Huang**  
Physics Beyond the  
Standard Model



**Chan Beom Park**  
Collider Physics



**Kohei Kamada**  
Cosmology, Early  
universe

# Structure of CTPU

Experimental group is like a team, while theoretical group is a collection of independent researchers.

There is no organized group or system among researchers in CTPU

# Structure of CTPU

Experimental group is like a team, while theoretical group is a collection of independent researchers.

There is no organized group or system among researchers in CTPU

There are two divisions in CTPU research, though it is not concrete as experimental groups.

Particle Physics and Cosmology.

## Particle Physics

## Cosmology

BSM  
SUSY  
LHC/Collider  
Higgs  
Exotic Quarks  
Dark photon  
Neutrinos  
Extra D  
ALP  
CP violation  
etc

Dark Matter  
BSM  
Origin of Matter  
etc

Early Universe  
Dark Matter  
Dark Energy  
Inflation  
Baryogenesis  
Leptogenesis  
Magnetogenesis  
Gravitational Wave  
Axion Cosmology  
etc



Each division has around 10 members.

Some of them participate in both division.

Members can work with CTPU member and/or outside collaborators or alone.

# How to find a theorist you need?

Each division is managed by two senior postdocs.

Particle Physics : Thomas Flacke

Cosmology : Ayuki Kamada

You can contact one of Faculty or senior postdocs.