



CHUNG-ANG UNIVERSITY
HIGH ENERGY PHYSICS

CAU HEP Center Workshop 2023

Hyun Min Lee
Chung-Ang University

Konjiam Resort
December 27-28, 2023

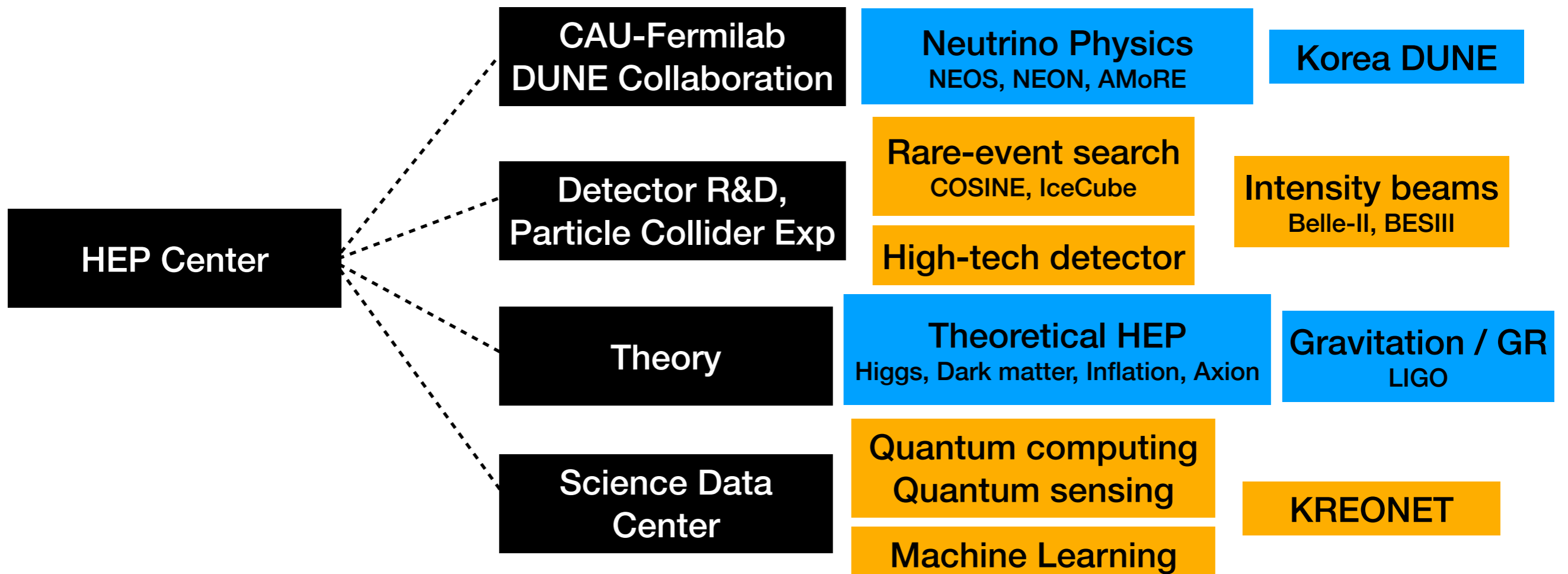
Background

CAU High Energy Physics Center 고에너지물리연구센터

- Collaboration between Particle Physics, Astrophysics, Cosmology, and Neighboring fields (Computational Sciences, Mathematics).
- Build up research groups in the frontiers of Particle Physics and Astrophysics.
- Focus on Intensity beam experiments and Cosmology frontiers.
- Hub for International collaboration between young researchers.
- Promote collaboration between subfields and theory-experiment cooperation.
- Established in 2020. CAU-representative candidate center selected and funded for 2022-2025.

Organization

- Project-based, grant-based.
- Set lab-based goals for research.
- Aim at specialization in astroparticle physics.
- Structure of center and labs.



HEP members

- Center Professors



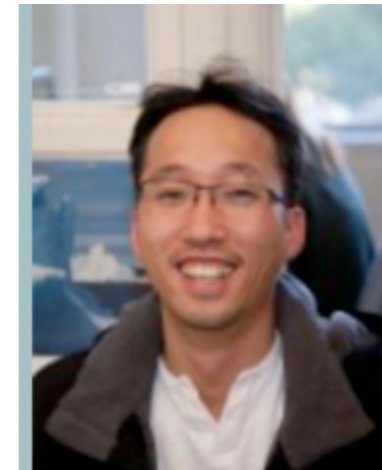
Hyun Min Lee

THEP



Kim Siyeon

NuLa



Chang Hyon Ha

RESL



Gungwon Kang

AXIS



Sookyung Choi

CbHEP

HEP members

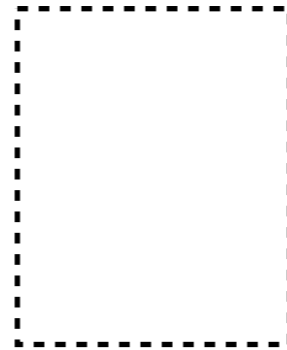
- Research professors & postdocs



Yuseon Jeong
(NuLa)



Carlo Branchia
(THEP)



Mehedi Masud
(NuLa, Dec~)



Rojalin Padhan
(THEP, Jan '24~)

- Ph.D/MS/research students

THEP

Adriana Menkara
Seongsik Kim

Myeongjung Seong

Junho Song
Sungbo Sim

Junsik Yu

Junghak Han
Junho Kang
Songmin Lee

RESL

Jinyoung Kim

Yujin Lee

Byoungcheol Koh Jongseok Chung

Hani Kimgu

Seongjoon Won

Jiwon Seo

Joonbeom Lee

NuLa

Sunwoo Gwon
Emar Masaku
Jongin Park

GR

Jiyeon Sun
Yeongil Kim

CbHEP

Jihyeok Jeong

Suhyeon Kim
Juseong Park
Gyeongui Ko

Yejun Han
Dongchan Kim
Hyeonguk Son

Eunji Jang

Advisory committee

- S. Brice (Fermilab)
- A. De Gouvea
(Northwestern U.)
- C. K. Jung (Stony Brook
U.)
- S. Olsen (IHEP)
- 김영덕 (IBS/CUP)
- 이형목 (KASI/서울대)
- 전용진 (KIAS)

Center activities

Open programs

- Leader's forum (2021-): consultation meeting with advisory committee or senior researchers
- CANU school on particle physics and astrophysics (2021-): summer school for senior undergraduates and graduates for three weeks.
- K-neutrino workshop (2022-)
- CAU Beyond the Standard Model workshop (2021-)
- K-Belle/Belle-II, K-DUNE, KGWG, K-IceCube, NR workshop.

Center activities

Internal events

- HEP center workshop: in-house meeting between labs. Dec 27-28, 2023.
- HEP journal clubs: 6 speakers from labs per semester.
- HEP seminars: 4 speakers from other institutes per semester.
- Poster days at department. Nov 23.
- Group seminars.

HEP seminars & journal clubs

- HEP Center Seminar 2023 Spring

Organizer: Shuntaro Aoki

shun-soccer@akane.waseda.jp

HEP Center Seminar

Venue: Rm. 110 at Bld. 102

Time: 16:00~18:00 Wednesday

Schedule:

March 15, Viatcheslav Mukhanov (Munich University and KIAS), Inflation

May 24, Pankaj Saha (Seoultech), Reheating

June 14, Yeong Gyun Kim (Gwangju National University of Education), Neutrinos

- HEP Journal Club 2023 Spring

Organizer: Gungwon Kang

gwkang@cau.ac.kr

HEP Center Journal Club Meeting

Venue: Rm. 110 at Bld. 102

Time: 16:00~18:00 Wednesday

Schedule:

March 15, Carlo Branchina

March 29, Chang Hyon Ha

April 5, Shuntaro Aoki

April 26, Seongsik Kim

May 10, Ki-young Jung

June 7, Yu Seon Jeong

Spring semester : 3 seminars and 6 journal clubs

HEP seminars & journal clubs

- HEP Center Seminar 2023 Fall

Organizer: Yuseon Jeong
yusjeong@cau.ac.kr

HEP Center Seminar
Venue: Rm. 108 at Bld. 102
Time: 17:00~18:00 Wednesday

Schedule:

Sept 20, Carlo Branchina (CAU), Black holes
Oct 11, Tae Jeong Kim (Hanyang), LHC
Nov 8, Moo-Hyun Lee (IBS CUP), AMoRE
Dec 13, Yong-Sun Kim (Sejong), EIC

- HEP Journal Club 2023 Fall

Organizer: Gungwon Kang
gwkang@cau.ac.kr

HEP Center Journal Club Meeting
Venue: Rm. 108 at Bld. 102
Time: 17:00~18:00 Wednesday

Schedule:

Sept 13, Seongjin Hong (CAU)
Oct 4, Gungwon Kang (CAU)
Oct 18, Jongseok Chung (CAU)
Nov 1, Kun Woo Kim (CAU)
Nov 15, Jihyuk Jeong (CAU)
Dec 6, Mehedi Masud (CAU)

Fall semester : 4 seminars and 6 journal clubs

HEP Forum

중앙대학교 고에너지물리 연구센터
CAU HEP CENTER

CAU CHUNG-ANG UNIVERSITY
HIGH ENERGY PHYSICS

LEADER'S FORUM FOR HIGH ENERGY PHYSICS

2023. 6. 27.
102관 110호



Chun, Eung Jin



Park, Inkyu

10:30 INTRODUCTION OF THE CENTER – LEE, HYUN MIN (CAU)
11:00 HEP COLLABORATION IN KOREA – PARK, INKYU (UNIVERSITY OF SEOUL)
13:00 LUNCH AND BREAK
15:00 INTRODUCTION OF THE CENTER ACTIVITIES – LEE, HYUN MIN (CAU)
15:30 THEORY STATUS AND COLLABORATION WITH EXPERIMENT – CHUN, EUNG JIN (KIAS)
17:30 CLOSING



Particle Physics
after Higgs Discovery

Eung Jin Chun

KIAS

What can you learn from HEP experiments?

My 30-year Journey with Experimental and Computational Physics
(on behalf of Korea Experimental HEP community)

2023년 6월 27일
중앙대학교 HEP 포럼
서울시립대학교 물리학과
박인규

Theory: Prof. Eung Jin Chun (KIAS)

Exp: Prof. Inkyu Park (Univ of Seoul)

- Visitor: Chang Kee Jung (Stony Brook Univ) - June 15-16.
- Visitor: Kaoru Hagiwara (KEK) - July 22-28.

CANU school on July 3 ~ 21

CANU Summer School Schedule

주차	시간	월	화	수	목
1주차 7/3 - 7/7	1000-1200	오리엔테이션	중성미자	중성미자	중성미자
1주차 7/3 - 7/7	1330-1530	특수상대론	입자물리 특강	표준모형	데이터 통계
1주차 7/3 - 7/7	1600-1800	상대론적 양자역학	표준모형	중성미자	데이터 통계
2주차 7/10 - 7/14	1000-1200	입자실험	중력파	중력파	가속기 기반 입자 실험
2주차 7/10 - 7/14	1330-1530	입자실험	--	가속기 기반 입자 실험	가속기 물리학
2주차 7/10 - 7/14	1600-1800	입자실험	중력파	가속기 기반 입자 실험	가속기 물리학
3주차 7/17 - 7/21	1000-1200	암흑물질	암흑물질	유효장론	유효장론
3주차 7/17 - 7/21	1330-1530	암흑물질	가속기 물리 이론	유효장론	유효장론
3주차 7/17 - 7/21	1600-1800	가속기 물리 이론	가속기 물리 이론 연습	유효장론 연습	종강 및 회식



CAU summer school on particle physics (2021 ~)

Topics: Standard Model, neutrino physics, dark matter, cosmology, relativity, GW, particle physics experiments, collider physics, effective field theory, etc.

Registered: 3 graduates, 22 undergraduates

Completed: 11 undergraduates (>80% attendance)

강사 이름 (강의 순)	강의 제목
김시연 (CAU)	상대론적 양자역학, 중성미자
이강영 (경상대)	표준모형
박인규 (서울시립대)	입자물리 특강
고영주 (IBS CUPP)	데이터 통계
강궁원(CAU)	중력파, 특수상대론
하창현(CAU)	입자실험
최수경(CAU)	가속기 기반 입자 실험
정모세 (UNIST)	가속기 물리학
이현민 (CAU)	유효장론
신창섭 (충남대)	암흑 물질
박찬범 (전남대)	가속기 물리 이론

CAU BSM workshop

- International Workshop on Beyond the Standard Model (2021~)

Topics

Higgs physics

Axion

Dark matter

Gravitational waves

Inflation

Neutrino

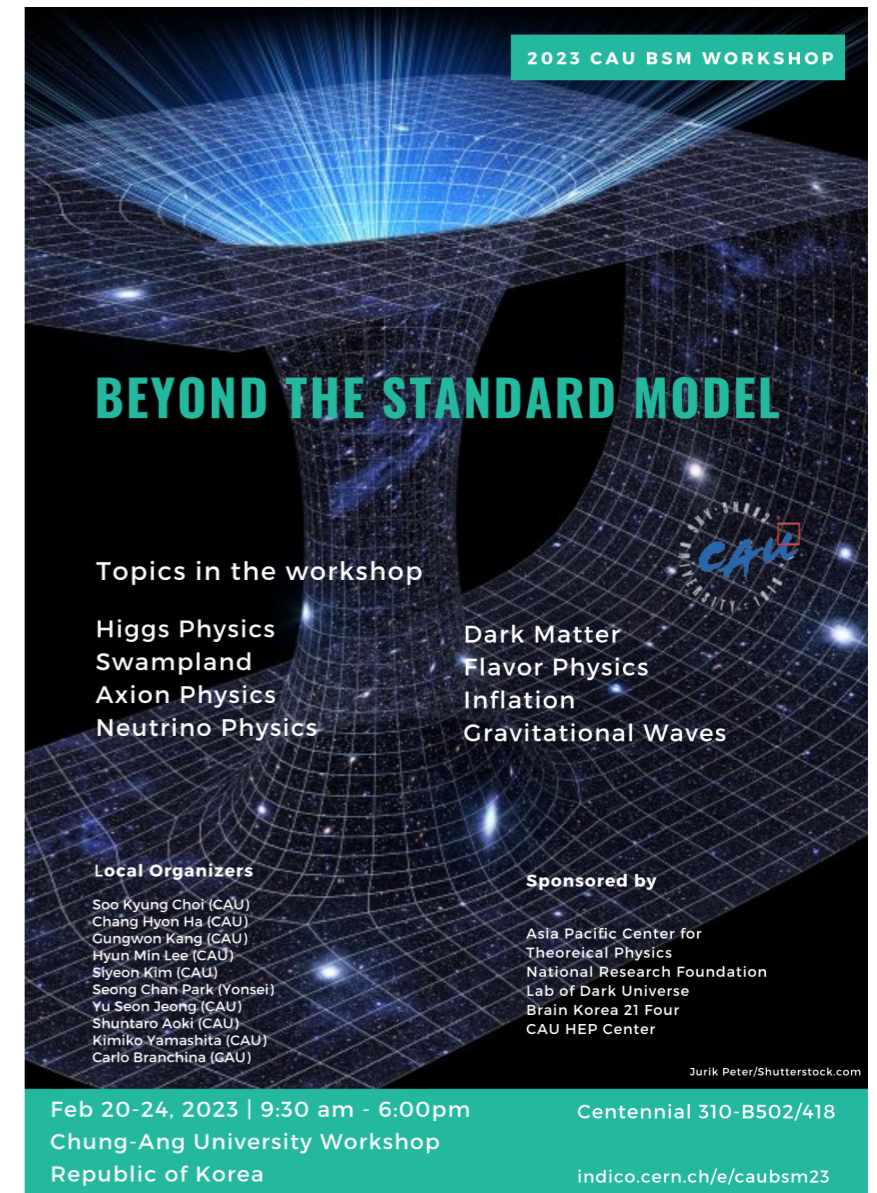
Flavor

2023 CAU BSM Program

Key speakers: 10 (foreign) + 27 (domestic)

8 contributed talks, 128 registrants

20-Feb 310-B502		21-Feb 310-B502		22-Feb 310-418		23-Feb 310-B502		24-Feb 310-B502	
9:30-10:30	Kaoru Hagiwara	9:30-10:30	Matthew Reece	9:30-10:30	Ben Safdi	9:30-10:30	Daniel Green	9:30-10:10	Pyungwon Ko
10:30-11:00	Break	10:30-11:00	Break	10:30-11:00	Break	10:30-11:00	Break	10:10-10:40	Simon Clery
11:00-11:40	Yeongduk Kim	11:00-11:40	Seung Joo Lee	11:00-11:40	SungWoo Youn	11:00-11:40	Hyung Mok Lee	10:40-11:10	Break
11:40-12:20	Jong Chul Park	11:40-12:20	Hyung Do Kim	11:40-12:20	Takeo Moroi	11:40-12:20	Youngmin Kim	11:10-11:40	Ki-Young Choi
12:20-14:00	Lunch	12:20-14:00	Lunch	12:20-14:00	Lunch	12:20-14:00	Lunch	11:40-12:00	Arpan Kar
14:00-14:40	Eung Jin Chun	14:00-14:40	Un-Ki Yang	14:00-14:40	Kiwoon Choi	14:00-14:40	Dumitru Ghilencea	12:00-12:20	Sougata Ganguly
14:40-15:10	Seung J. Lee	14:40-15:10	Jeonghyeon Song	14:40-15:10	Minho Son	14:40-15:40	David Weir	12:20-14:00	Lunch
15:10-15:40	Sunghoon Jung	15:10-15:40	Seong Youl Choi	15:10-15:40	Ryosuke Sato	15:40-16:10	Break	14:00-14:40	Motoi Endo
15:40-16:10	Break	15:40-16:10	Break	15:40-16:20	Deog Ki Hong	16:10-16:40	Kyungmin Kim	14:40-15:20	Youngjoon Kwon
16:10-16:50	Seong Chan Park	16:10-16:40	Myeonghun Park	16:20-18:00	discussion	16:40-17:10	Shuntaro Aoki	15:20-15:50	Chan Beom Park
16:50-17:10	Shu-Yu Ho	16:40-17:10	Sungwoo Hong	18:00-21:00	Banquet	17:10-17:30	Pankaj Saha	15:50-16:20	Break
17:10-17:30	Kiyoharu Kawana	17:10-17:40	Kimiko Yamashita			17:30-18:00	Ligong Bian	16:20-16:50	Sang Hui Im
		17:40-18:00	Liliana Velasco					16:50-17:10	Junichiro Kawamura
								17:10-17:30	Adil Jueid



CAU BSM workshop

2024 CAU BSM WORKSHOP

BEYOND THE STANDARD MODEL

Topics in the workshop

Higgs Physics	Dark Matter
Primordial Black Holes	Flavor Physics
Axion Physics	Inflation
Neutrino Physics	Gravitational Waves

Local Organizers

Soo Kyung Choi (CAU)
Chang Hyon Ha (CAU)
Gungwon Kang (CAU)
Hyun Min Lee (CAU)
Siyeon Kim (CAU)
Deog Ki Hong (PNU)
Donghan Yeom (PNU)
Seong Chan Park (Yonsei)
Yu Seon Jeong (CAU)
Carlo Branchina (CAU)

Sponsored by

Asia Pacific Center for
Theoretical Physics
National Research Foundation
Center for Cosmological
Constant Problem
Lab of Dark Universe
Brain Korea 21 Four
CAU HEP Center

Feb 19-23, 2024 | 9:30 am - 6:00pm
Chung-Ang University Workshop
Republic of Korea

Centennial 310-B502
indico.cern.ch/e/caubsm24

- Date: Feb 19-23, 2024
- Place: CAU, 310-B502
- Invited speakers: 11 foreign, 25 domestic, 10 contributed.