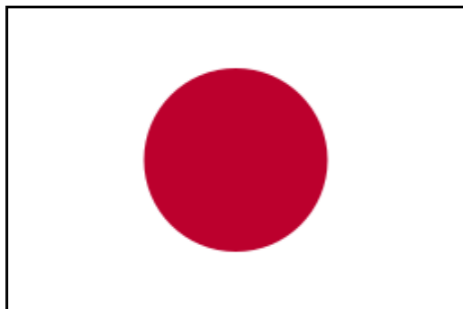
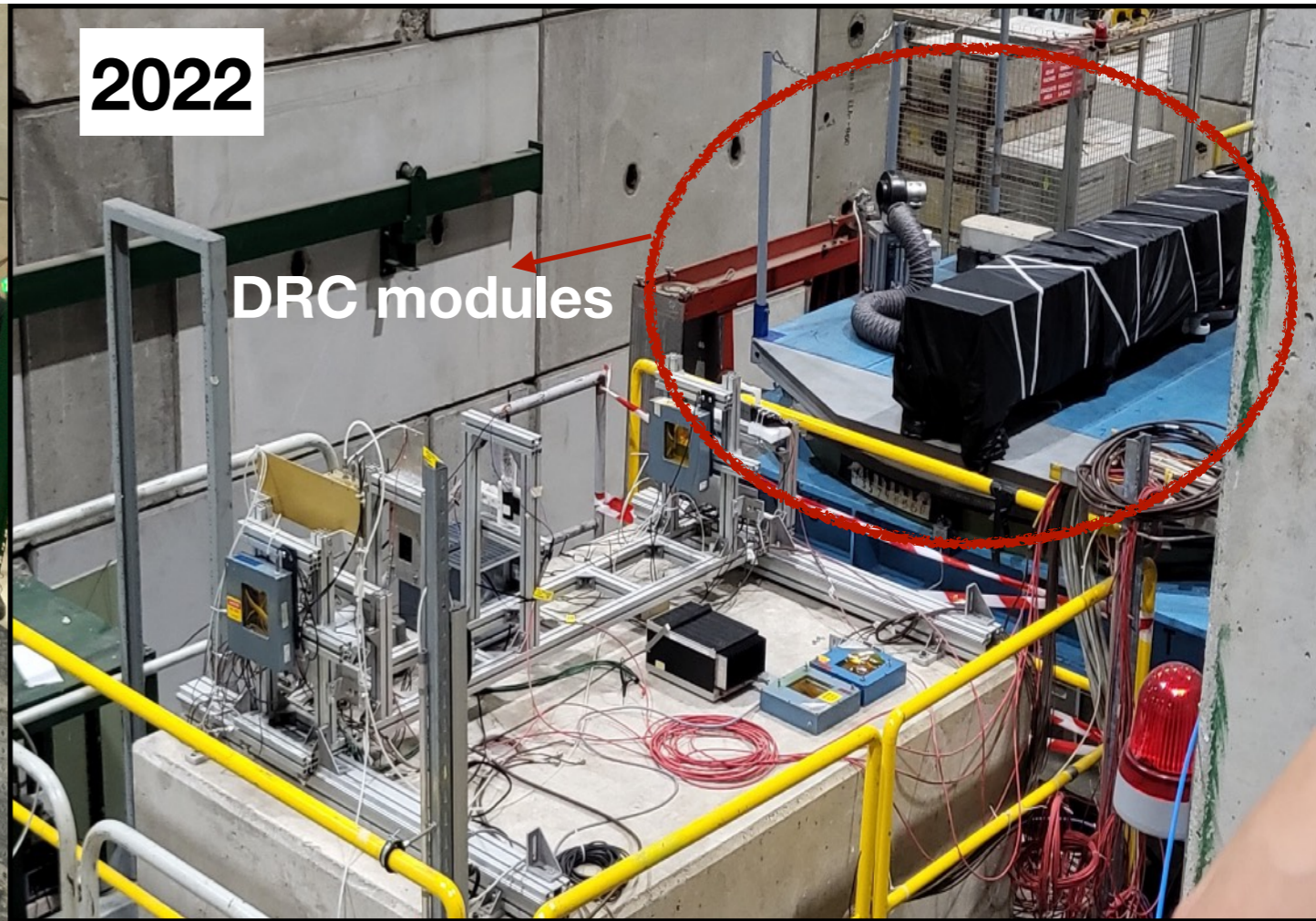


S. Korea (and Japan) 2023 achievements in PED

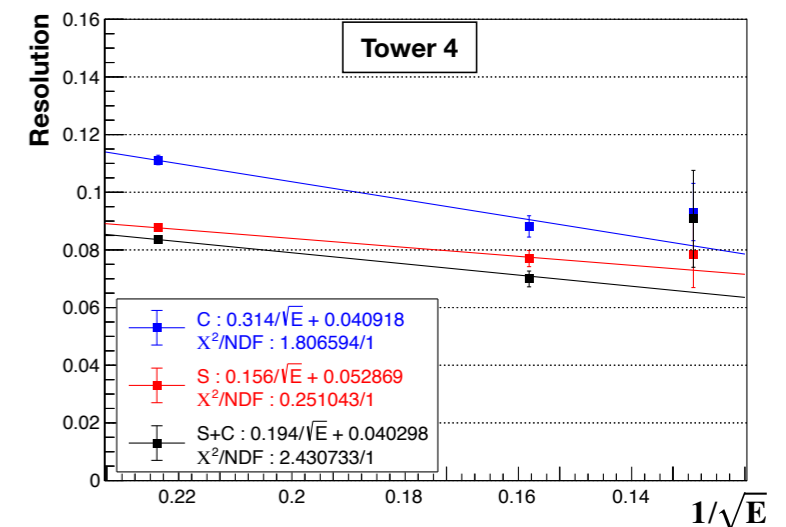
Hwidong Yoo (Yonsei Univ.)



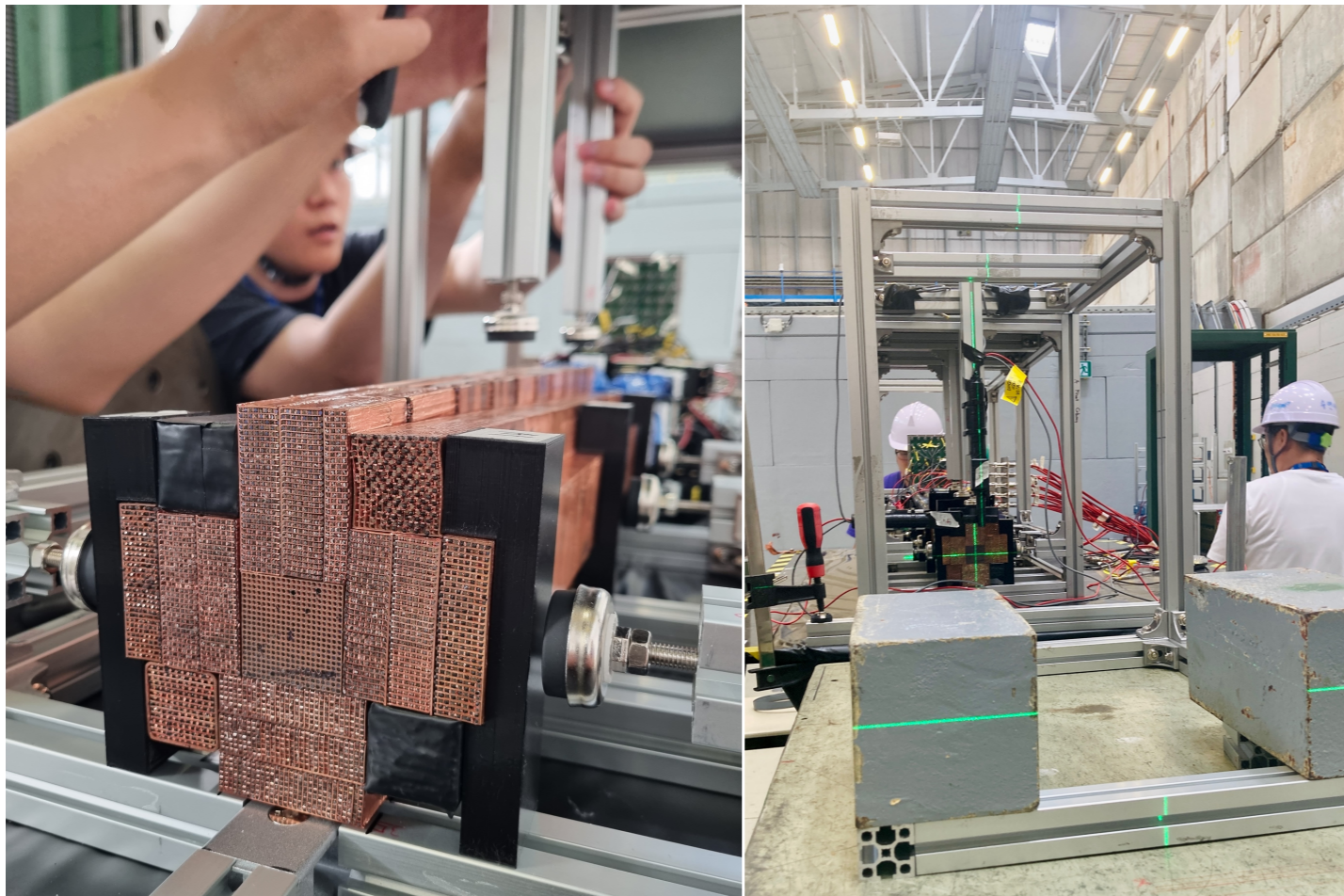
Dual-Readout Calorimeter R&D



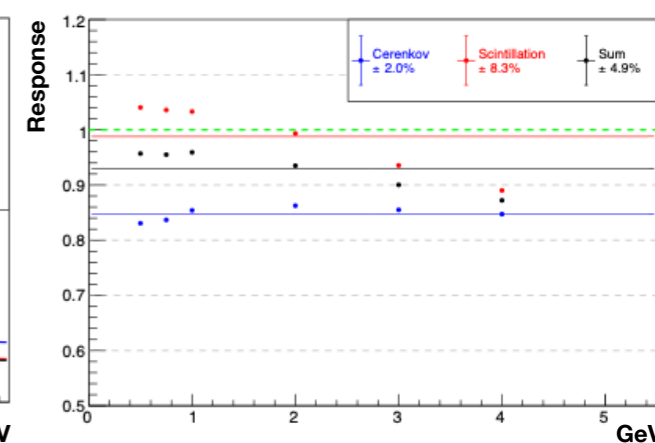
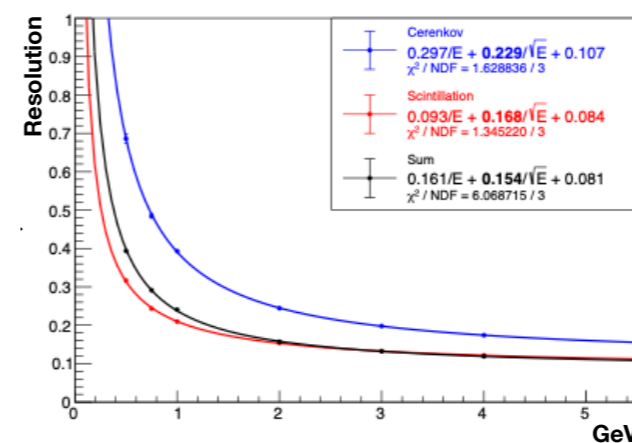
- Test-beam experiment with two full-size module at CERN SPS H8
- 13 institutes 34 participants including 23 students (Aug. 17 - 24, 2022)



Dual-Readout Calorimeter R&D



- Test-beam experiment at CERN PS T9
 - New prototype modules with various Cu forming techniques
- 6 institutes 20 participants including 15 students (Jul. 5 - 12, 2023)



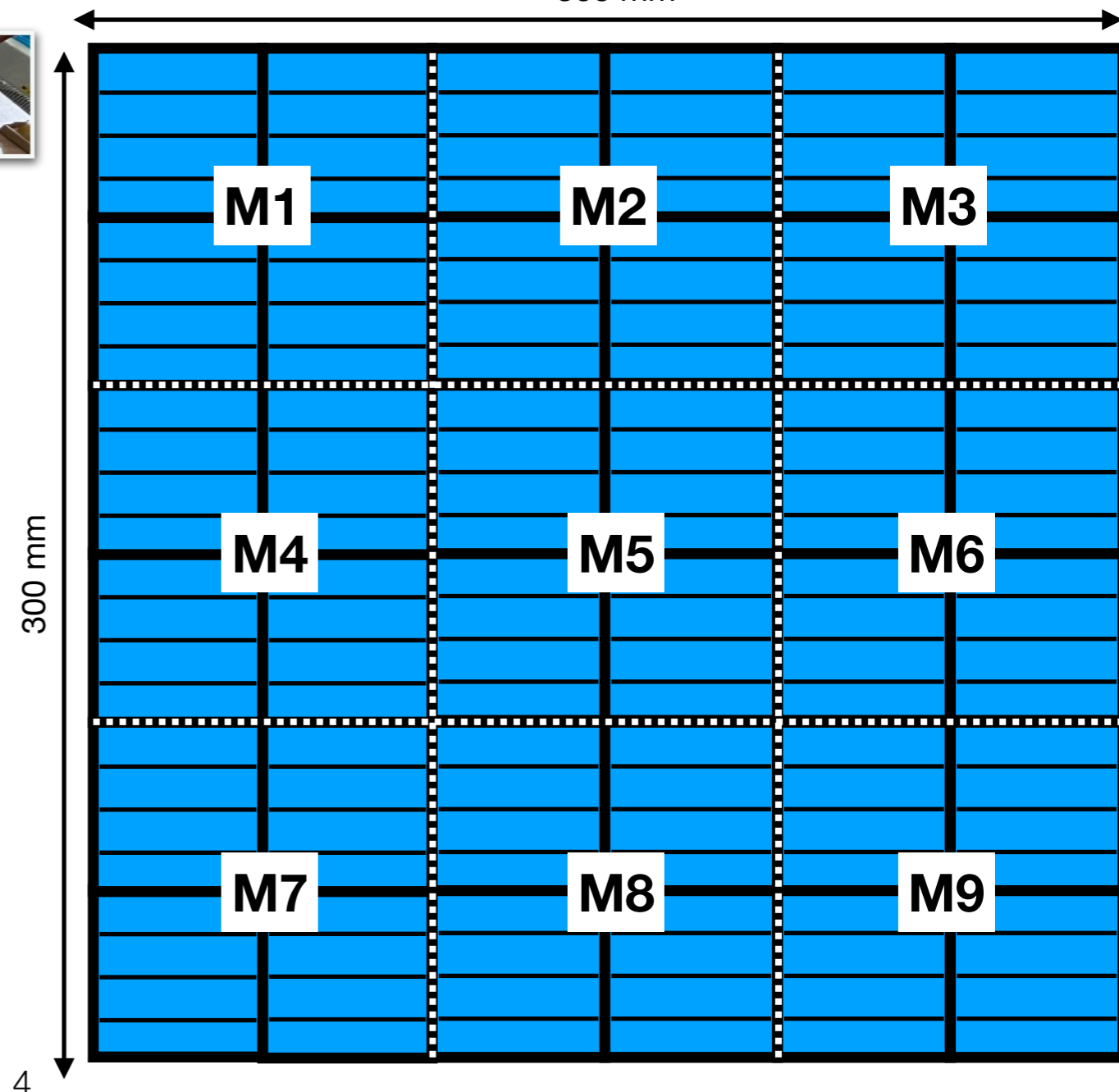
Preparation for TB 2024

- Build new 9 modules to measure hadron energy resolution
 - Finish about 70% construction

longitudinal length: 2500 mm

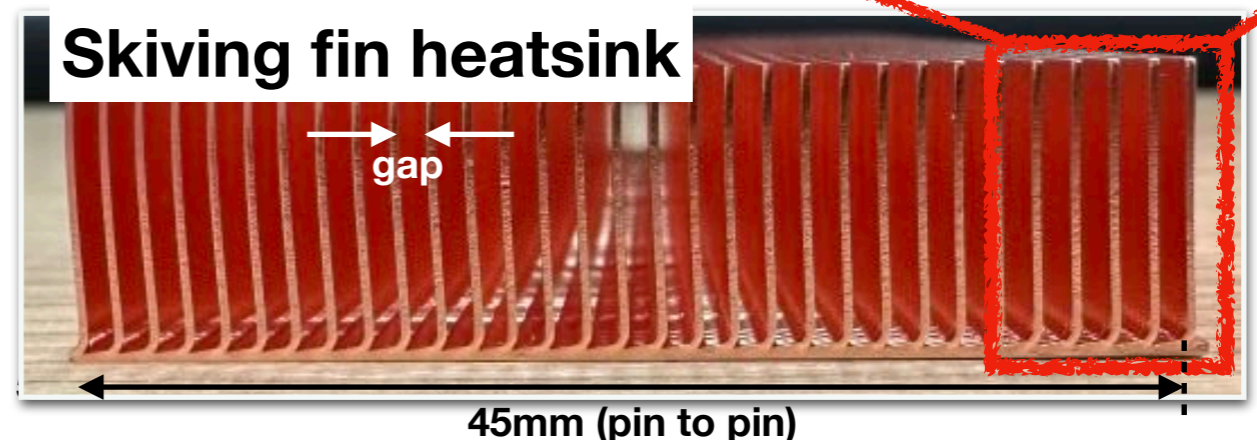
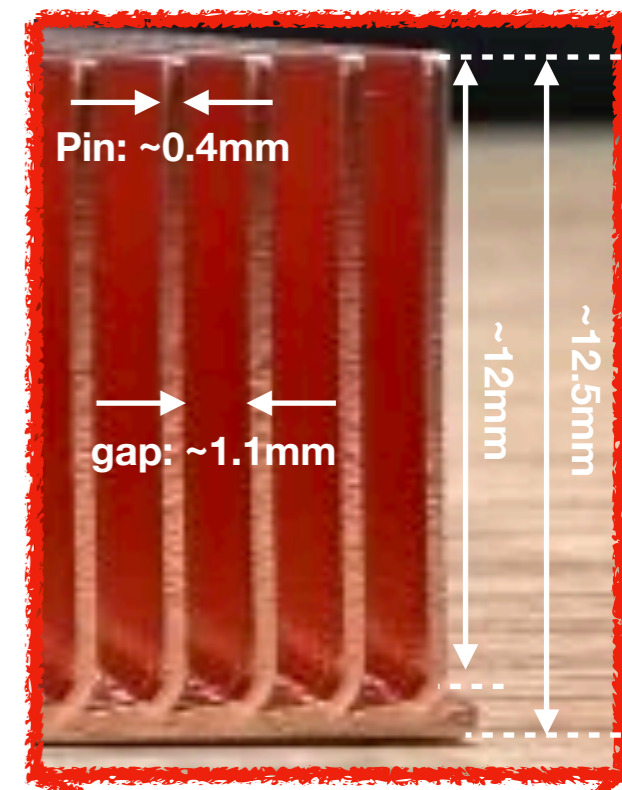
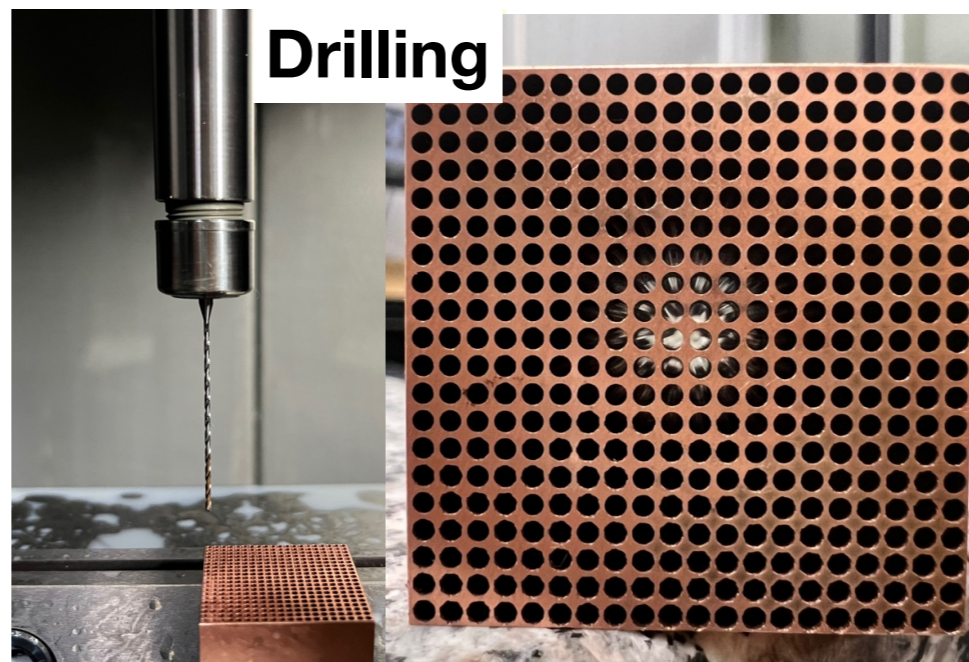
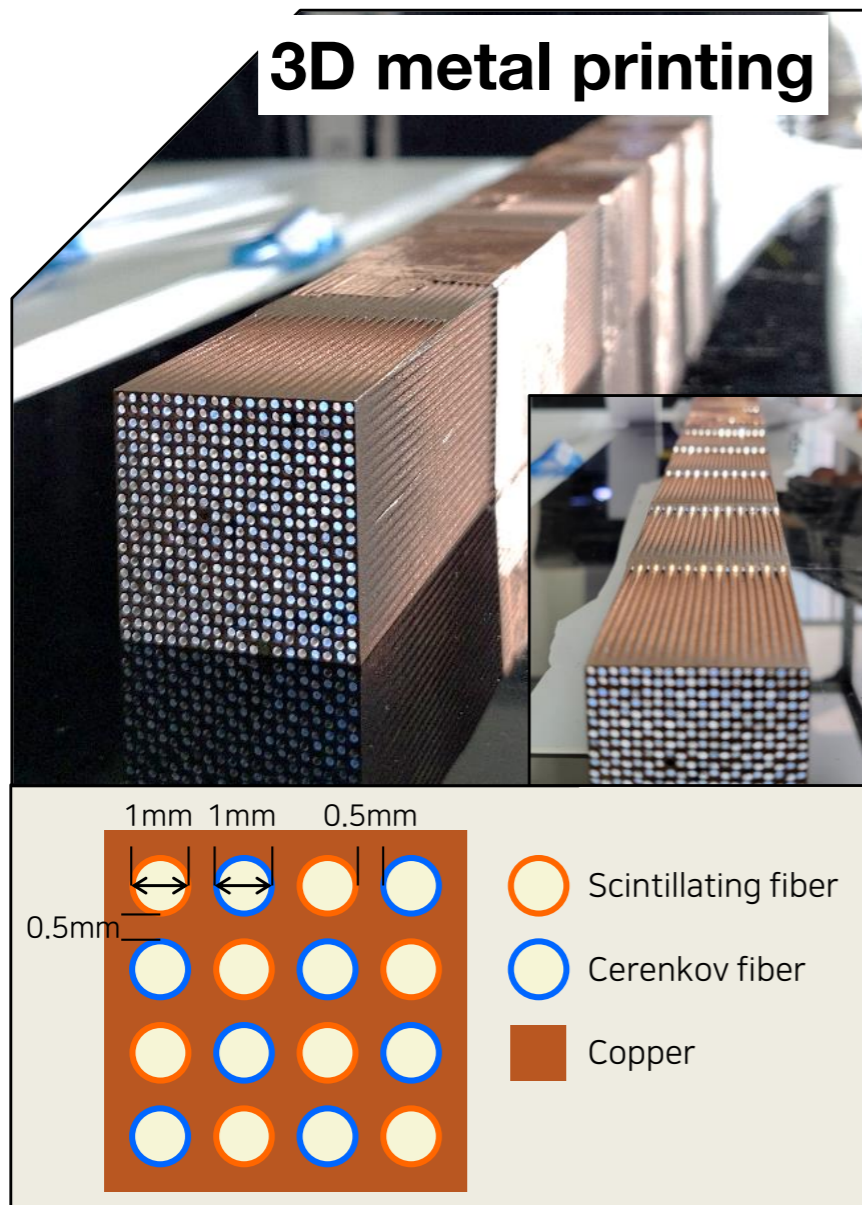
3x3 size module

300 mm



Cu Forming R&D

- Try to find a solution for mass production with local mechanical engineering experts and manufacturers
- Skiving fin heatsink, 3D metal printing, drilling, etc.



FCC MOU

- Signing FCC MOU during FCC workshop at London
 - Accelerator: PAL
 - Experiment: 8 institutes (GWNu, KNU, KHU, PNU, UoS, SKKU, YU, HU)



동아사이언스 구독 PICK

'혁신' 발견 LHC 잇는 차세대 입자 가속기 핵심 기술, 한국 연구진이 개발

입력 2023.06.19. 오전 9:51 기사원문

박정연 기자

7 1

| 국내 가속기 및 입자물리 공동 연구팀, 유럽입자물리연구소(CERN)와 MOU 체결



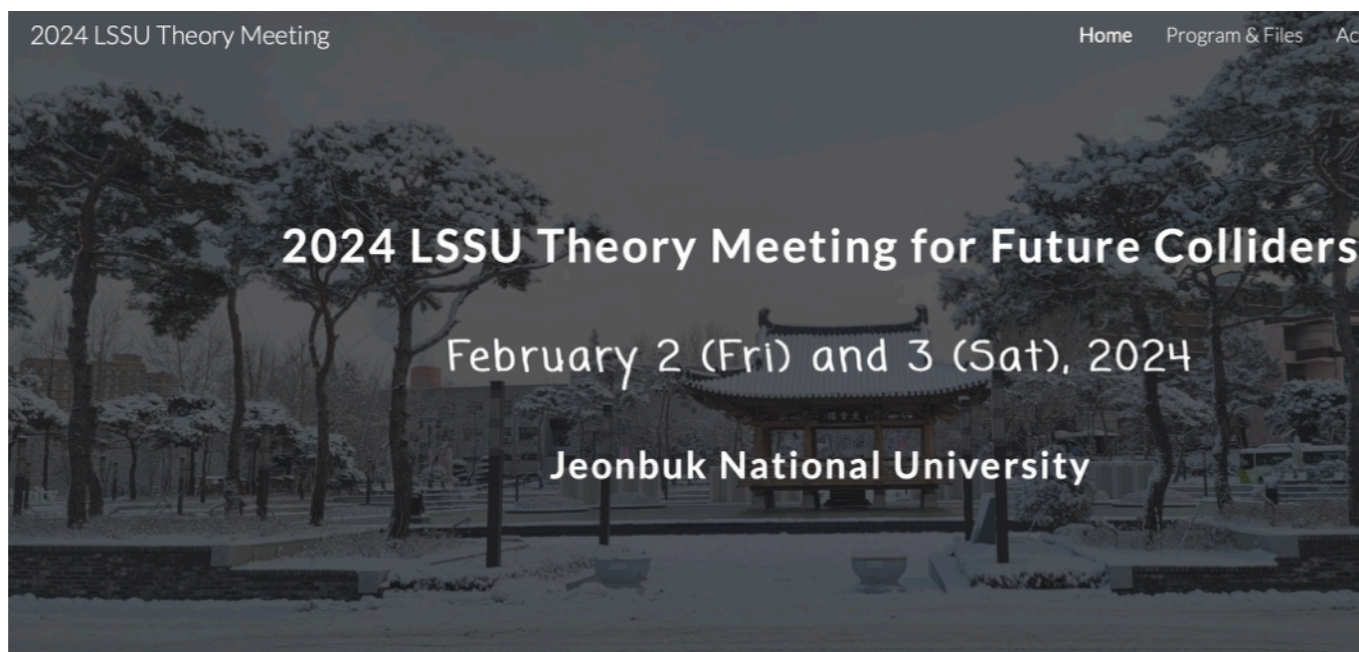
국내 가속기 및 입자물리 공동 연구팀과 유럽입자물리연구소(CERN)가 7일 가속기 및 검출기 연구개발(R&D) 협력을 위한 양해각서(MOU)를 체결하고 기념사진을 촬영하고 있다. 연세대 제공

국내 가속기 및 입자물리 공동 연구팀은 7일 유럽입자물리연구소(CERN)와 가속기 및 검출기 연구개발(R&D) 협력을 위한 양해각서(MOU)를 체결했다고 19일 밝혔다.

이번 MOU를 체결한 국내 가속기 및 입자물리 공동 연구팀에는 김민석 강릉원주대 교수, 이세욱 경북대 교수, 고정환 경희대 교수, 임상훈 부산대 교수, 이상훈 서울시립대 교수, 김범규 성균관대 교수, 유휘동 연세대 교수, 강흥식 포항가속기연구소 소장, 김태정 한양대 교수가 참여하고 있다.

Local Workshops

- Small strategic workshop between accelerator and experiment leaders (Nov. 12-14, 2023)
 - Discuss FCC, EIC and MuCol
- Many theory seminars to discuss for FCC/BSM physics
- Dedicated workshop for FCC physics in this week (Feb. 2 - 3)



DRD 6 (Calorimetry) Collaboration

- Participate the proposal team of Detector R&D 6 (Calorimetry) collaboration
 - Has been approved by CERN at the end of last year

ECFA

DRD Calo - Proposal Team



Coordinators: Roberto Ferrari, Gabriella Gaudio (INFN-Pavia), R.P. (IJCLab)

Representative from ECFA Detector R&D Roadmap Coordination Team: Felix Sefkow (DESY)

WP 1: Sandwich calorimeters with fully embedded Electronics – Main and forward calorimeters

Conveners: Adrian Irlles (IFIC, adrian.irlles@ific.uv.es), Frank Simon (KIT, frank.simon@kit.edu), Jim Brau (University of Oregon, jimbrau@uoregon.edu), Wataru Ootani (University of Tokyo, wataru@icepp.s.u-tokyo.ac.jp), Imad Laktineh (I2PI, imad.laktineh@in2p3.fr)

WP 2: Liquefied Noble Gas Calorimeters

Conveners: Martin Aleksa (CERN, martin.aleksa@cern.ch), Nicolas Morange (IJCLab, nicolas.morange@ijclab.in2p3.fr), Marc-Andre Pleier (mpleier@bnl.gov)

WP 3: Optical calorimeters: Scintillating based sampling and homogenous calorimeters

Conveners: Etienne Auffray (CERN, etiennette.auffray@cern.ch), Marco Lucchini (University and INFN Milano-Bicocca, marco.toliman.lucchini@cern.ch), Philipp Roloff (CERN, philipp.roloff@cern.ch), Sarah Eno (University of Maryland, eno@umd.edu), Hwidong Yoo (Yonsei University, hdyoo@cern.ch)

WP 4: Electronics and DAQ

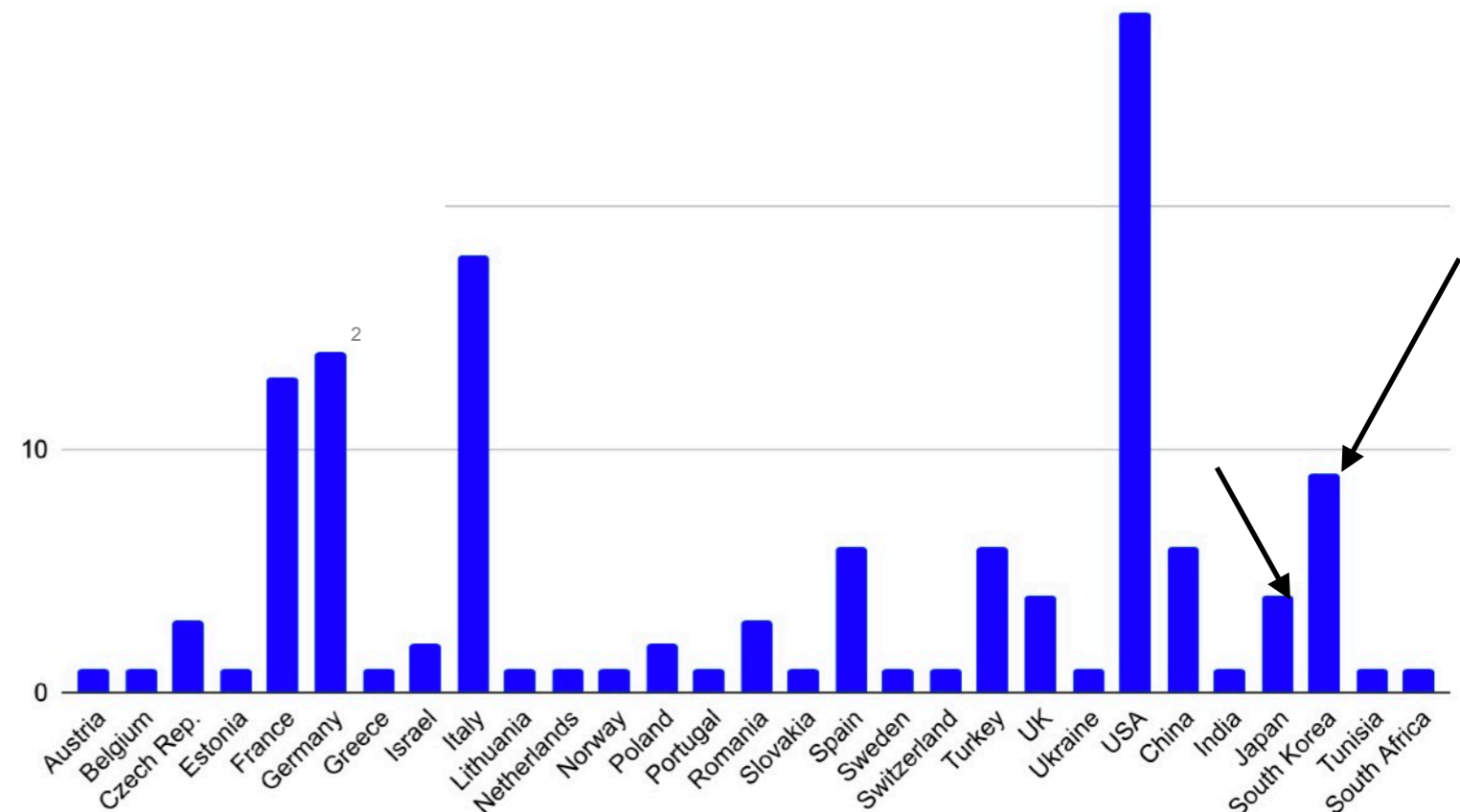
Christophe de la Taille (OMEGA, taille@in2p3.fr)

Transversal Activities

Photodetectors: Alberto Gola (FBK, gola@fbk.eu)

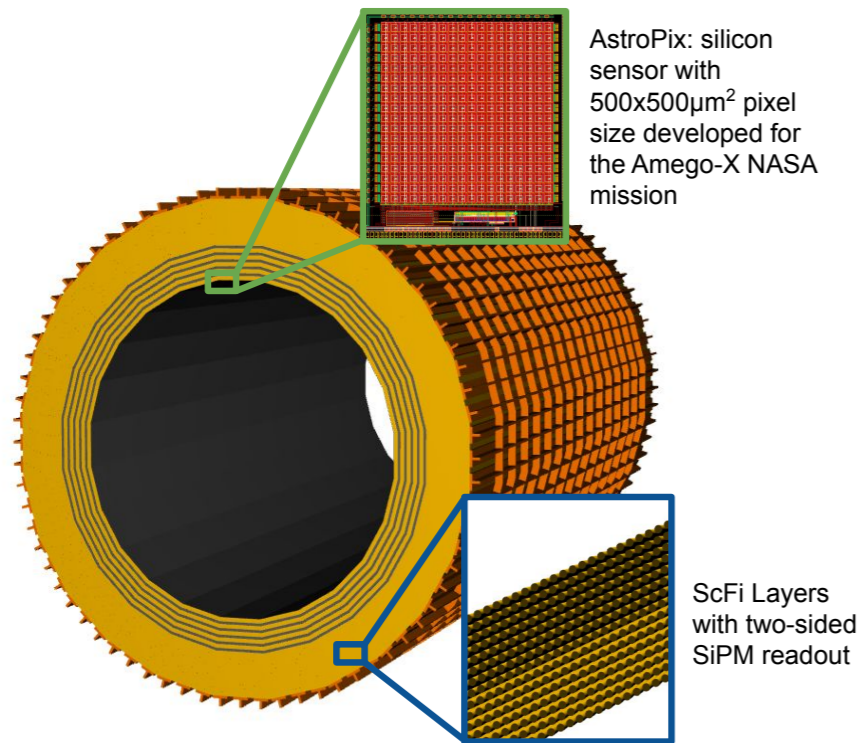
Proto-CB Meeting – Jan. 2024

Institutes per Countries



Barrel ECAL for EIC (US)

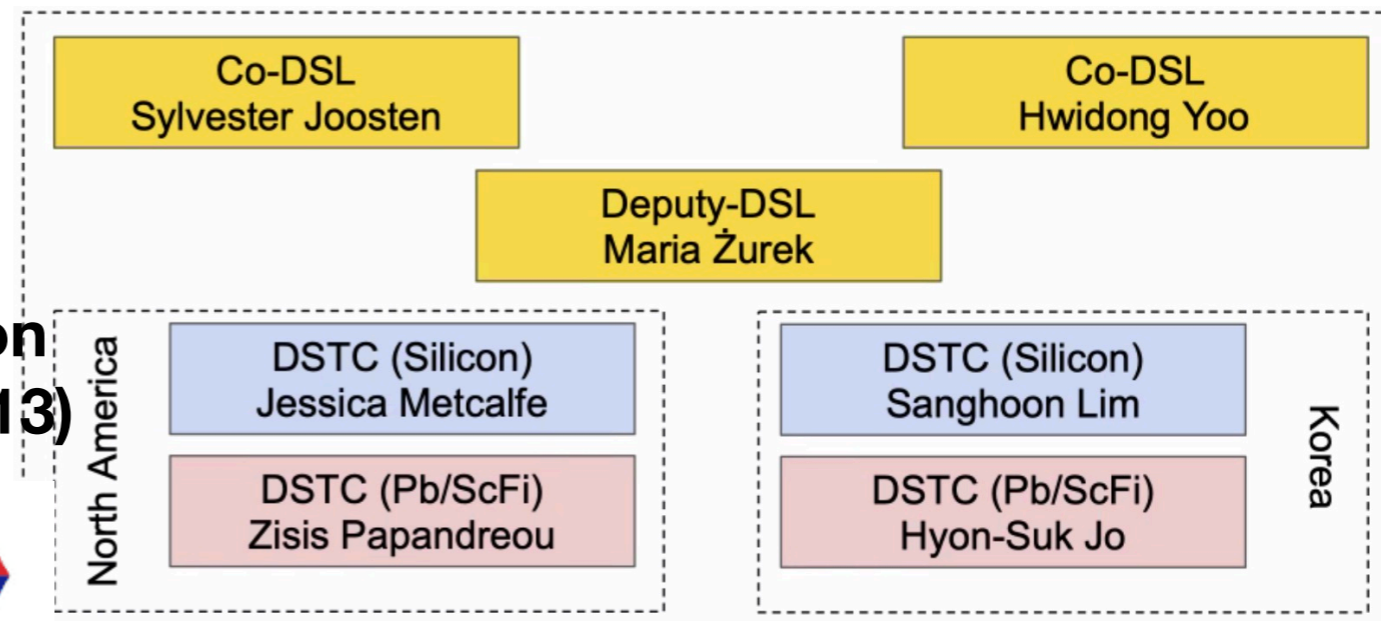
- Korean group is leading the barrel ECAL R&D and construction
 - About \$20M contribution (material, labor, travel etc.) for the construction and commissioning under discussion between our MIST and US DOE for next 10 years



K-BECAL members (10 faculties)

							
H.D. Yoo	H.J. Kim S.W. Lee H.S. Jo	S.H. Lee	S.H. Lim	S.Y. Choi	B.K. Kim	B.G. Cheon	M.S. Kim

Managements in bECAL



ePIC collaboration meeting (Jan. 8 - 13)



Activities in Japan

- No direct contribution to FCC, but ILC project is on-going

Progress in SRF Technology

~1.3 GHz worldwide SRF accelerators



Progress of Linear Colliders - CEPC WS, October 2023

Junping Tian (tian@icepp.s.u-tokyo.ac.jp) 7



ILC250 ~ 20km

ILC Project News

towards realization



- MEXT (represents Japanese government) didn't approve the original Pre-Lab proposal [newsline]
- Not entirely negative: pointed out what directions to move forward ["hosting is not the problem", S.Asai]
- Support to carry out time-critical R&D that was in the Pre-Lab proposal
- A really encouraging sign from this April: a fact of 2 increase on KEK funding for ILC R&D by MEXT
- ILC Technology Network (ITN) is launched: memorandum between KEK & CERN signed
- Promotion under leadership by International Development Team (IDT), KEK and ILC-Japan

What is the goal in spring 2023? [T.Nakada @ Snowmass 2022]

- The International Network for the ILC related technology development is ready to start or even has started. 😊
- The International Expert Panel makes a significant advancement in the discussion for Step 1. 😞

Step 1 Developing a path for a global project adoptable for the ILC:

Step 2 Developing the ILC decision roadmap by adopting this path

Progress of Linear Colliders - CEPC WS, October 2023

Junping Tian (tian@icepp.s.u-tokyo.ac.jp) 11

Status	(RDR)	(TDR)	2021	(EDR)*
SRF cavity, CM	~ 2017 Technology development -> Model work -> Prototype	2018 ~ 2021 High performance and cost reduction of cavities	International mass production, and transfer demonstration	
SRF Linac	Model work: small-scale models, partial/component models.	European XFEL user operation		
e- source	~ 2017 Tech. Design -> Tech. Development -> Tech. Demonstration		Tech. confirmation	
e+ source Undulator scheme	~ 2017 Tech. Design -> Tech. Development	2018 ~ 2021 Tech. Demonstration	Target and magnetic focusing	
e+ source e-driven scheme	~ 2017 Tech. Design -> Tech. Development	2018 ~ 2021 Tech. Demonstration	Target and capture cavity	
DR	~ 2017 Design -> Tech. Development -> Tech. demonstration achieved at KEK ATF		Kicker	
Final focus	~ 2017 Design -> Tech. Development -> Tech. demonstration achieved at KEK ATF		Stable op.	
Dump	~ 2017 Tech. Design -> Tech. Development	2018 ~ 2021 Facility design	Remote handling	

ILC construction

[S.Michizono @ ILCX2021]