



KAEM, Future Lepton Colliders, CMS, Medical Physics

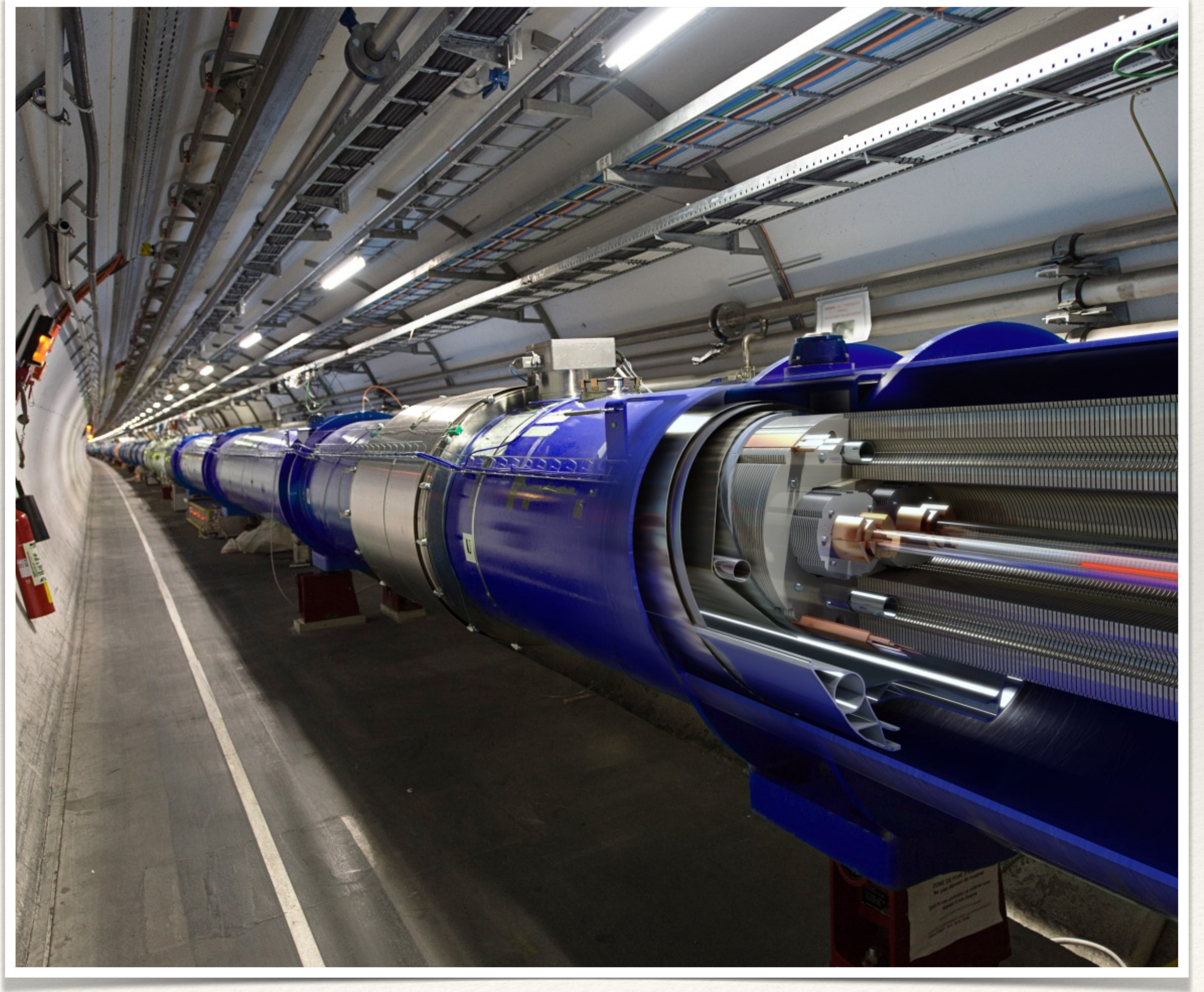
High Energy Physics Lab.

Changgi Huh, Bobae Kim, Junghyun Lee,
Sangil Pak, Ryonghye Ye, Sezen Sekmen
(Post-doc) and **Sehwook Lee**

Nov. 18th, RM 120

Research Topics

- ❖ **CMS experiment at LHC, CERN (International collaboration)**
 - ❖ CP Violation
 - ❖ SUSY
 - ❖ Excited lepton
- ❖ **Future lepton collider experiments (International collaboration)**
 - ❖ **Dual-readout calorimeter**
- ❖ Experiment at KNU
 - ❖ **KoreA Experiment on Magnetic Monopole (KæM)**
- ❖ **Medical Physics: collaboration with National Cancer Center**



Research Topics

- ❖ **CMS** (Compact Muon Solenoid) at LHC, **CERN**
 - ❖ **SUSY Searches:**
 - ❖ **Sang-il Park, Sezen Sekmen** (Post-doc): chargino, neutralino
 - ❖ **Changgi Huh, Ryonghye Ye, Sezen Sekmen** (Post-doc): stop, gluino, neutralino (JHEP 03 (2019) 031, arXiv: 1812.07831)
 - ❖ **Excited Lepton Search: Bobae Kim** (JHEP 04 (2019) 015)
 - ❖ **CP-violation in top-quark pair system: Sehwook Lee**
- ❖ **RD52** at CERN: R&D for **Dual-Readout Calorimeter: Sehwook Lee** (15 papers, Rev. Mod. Phys. 90 (2018) 025002)
- ❖ **Future Lepton Colliders (FCC-ee, CEPC): Sehwook Lee**
 - ❖ Design and simulations of 4π projective geometry calorimeter for FCC-ee (CERN) and CEPC (China): **Junghyun Lee**
 - ❖ Photo sensor (SiPM) R&D: **Bobae Kim**
 - ❖ Our design and simulation results were published in CEPC-CDR, FCC-ee CDR (EPJ st.)
- ❖ Search for Elementary **Magnetic Monopole: John Hauptman (Iowa State Univ.), Changgi Huh, Junghyun Lee, Ryonghye Ye, Sehwook Lee**
- ❖ **Medical Physics** (collaboration with **National Cancer Center**): **Sangil Pak, Sehwook Lee**

Funding Status and Financial Supports for Students

- ❖ Korea CMS co-researcher (2016 ~ present)
- ❖ Mid Career Program (2019 ~ 2024): 99M KRW / year
- ❖ Young Researcher Program (2015~2018): 50M KRW / year
- ❖ BK21 FOUR
- ❖ Teaching Assistant

Open Position

- ❖ 1 Masters' degree student position: KAEM, Future Lepton Collider Experiments, CMS, Medical Physics
- ❖ If you are interested in joining these experiments, please contact with me via sehwook.lee@knu.ac.kr