



CMS

Muon Solenoid

Com

Korea CMS activity & future plan

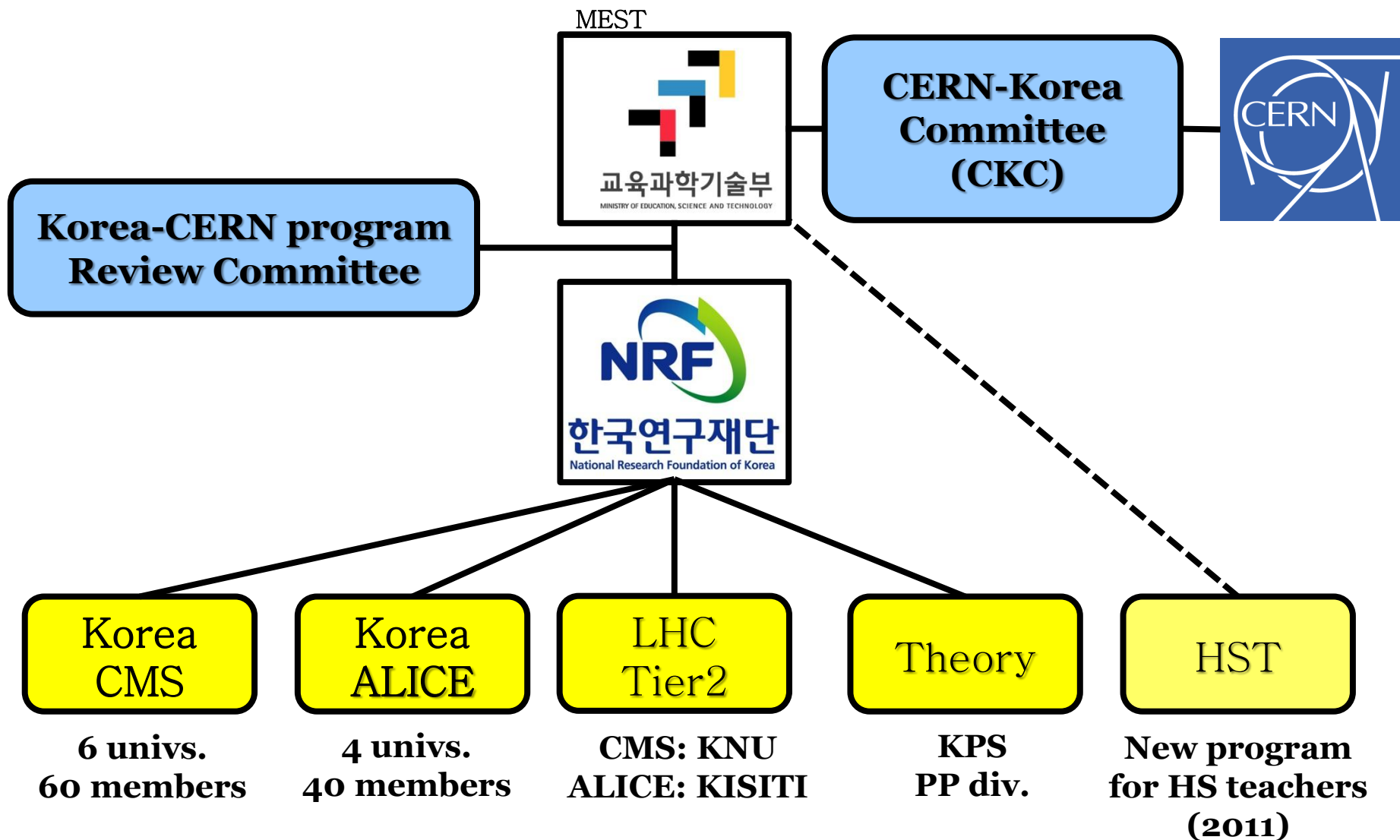
Oct. 17, 2011

Inkyu PARK

**Dept. of Physics, University of Seoul
(National PI of KCMS)**



Korea-CERN program structure

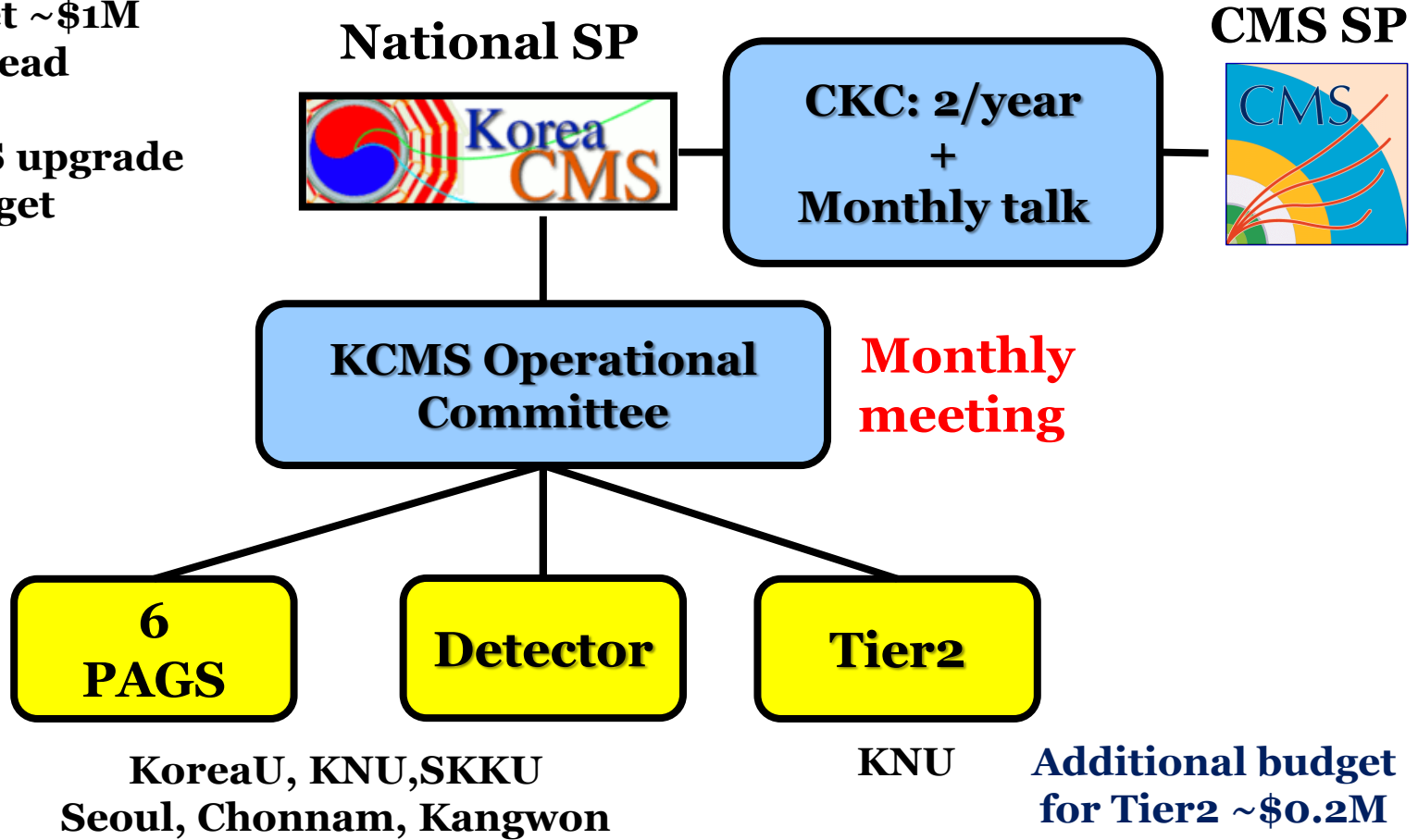




KCMS structure



- Travel budget ~\$1M + some overhead
- Plan for CMS upgrade → asking budget



In the process of review by the “International Collaboration Program Review Committee”

□ 6 institutions

- **Current: Korea, KNU, SKKU, Seoul, Chonnam, Kangwon**
- **Future: SNU, Chonbuk, KGU, Jeju, Dongsin**

□ 62 participants

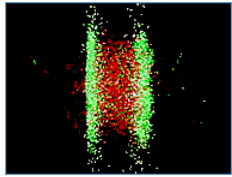
- **Ph.D.: 28 (20 M&O-A paid)**
- **Graduate students: 29**
- **Technicians & secretaries : 5명**

□ Size of collaboration

- **20 M&O-A → 1.5% of CMS**
- **Yearly travel budget → \$1.2M**

□ Future plan

- **2012-2016: Physics analysis, FWD muon detector**
- **2017-2020: participants ~100, annual funding of ~\$3M/year**



Heavy Ion



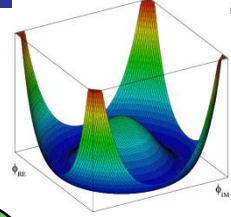
Detector R&D

Computing



Operational Committee

Higgs search

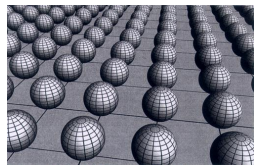


QCD

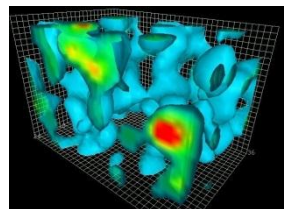
Beyond SM



ExtraD



SUSY



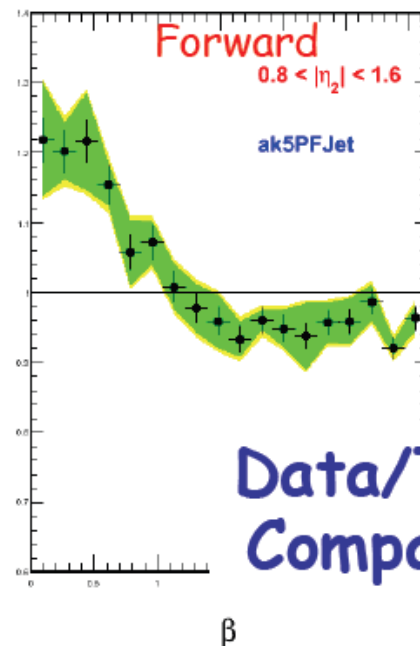
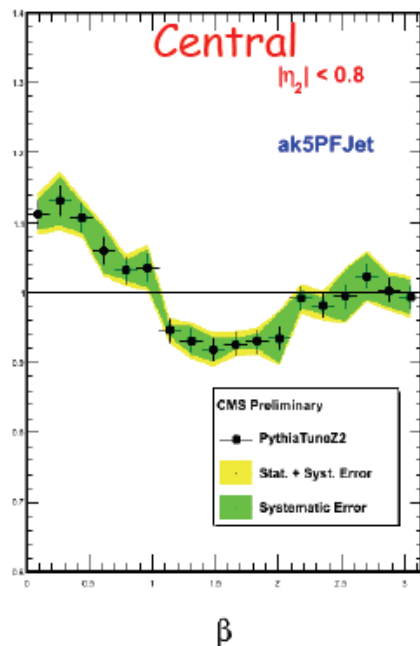
MEST/NRF/CERN

CMS / Korea CMS

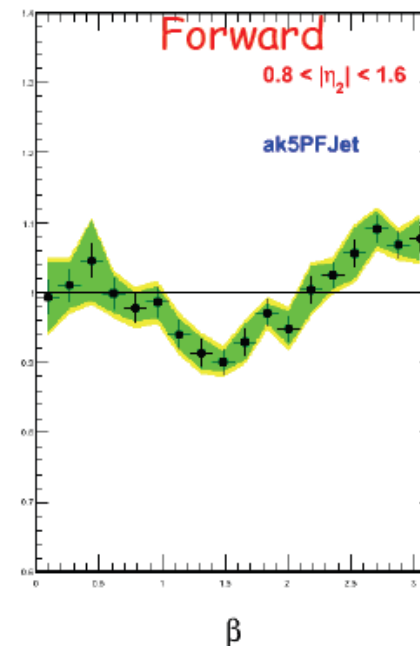
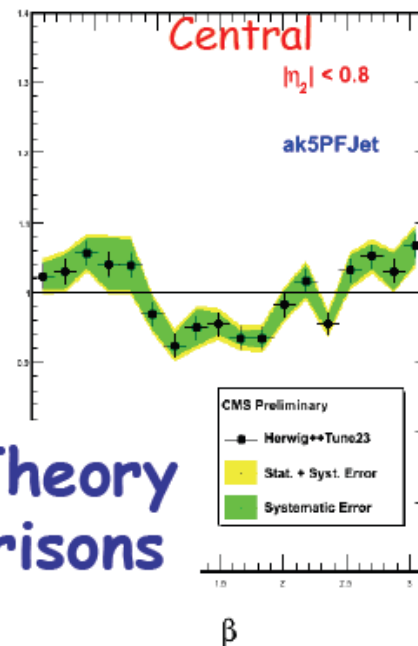
- **2/3 jet cross section ratio**
 - *Panos Kokkas*
- **Color Coherence Analysis**
 - *Inkyu Park, Chawon Park, Sangnam Park*
- **Di-jet Mass Cross Section**
 - *Bora Isildak, Kostas Kousouris, Georgios Mavromanolakis, Klaus Rabbertz, Niki Saoulidou*
- **Inclusive Jets**
 - *Ozlem Kaya, Mithat Kaya, Bora Isildak, Konstantinos Kousouris*
- **Multijet Studies at CMS**
 - *Sunanda Banerjee, Manjit Kaur, Ruchi Gupta*
- **Three-Jet Mass**
 - *Giinter Quast, Klaus Rabbertz, Fred Stober*

Presented by Leonard Apanasevich (UIC) & Andreas Oehler (KIT)

(PYTHIA6 TuneZ2)

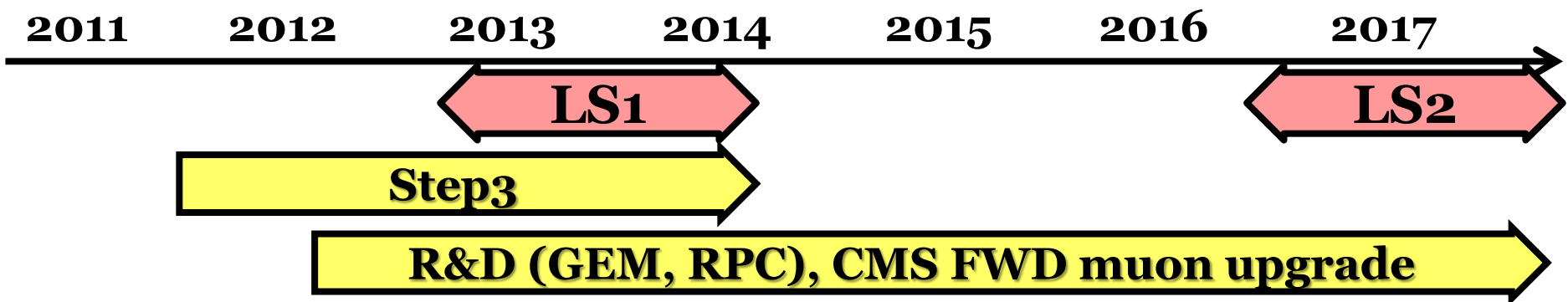


(Herwig++ Tune23)



Data/Theory Comparisons

- Plots include systematic uncertainties due to JES, Jet Algorithm
 - Additional systematic unc. under study (e.g. Jet eta bias, Jet energy resolution uncertainty, etc.)
- Enhancement of Data compared with Pythia6 (AO On) is shown near the event plane ($|\beta| = 0$), while there is depletion in the transverse plane ($|\beta| = \pi/2$)
- Herwig++ MC describes the data better than Pythia6 MC, but still depletion is shown at the transverse
- An example of success stories of collaboration!**
- Analysis note to be released soon QCD Meeting

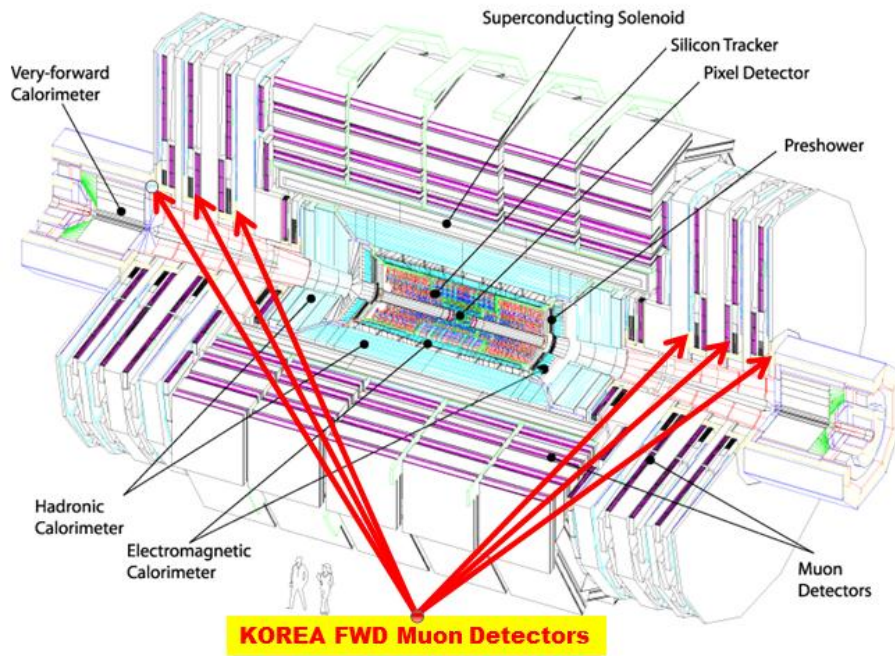


□ LS1: RPC Step3

- 2006 MOU (405kCHF cash)
 - Fully completed in Sep. 2011
 - CTC2 remains still
- 660 gaps produced by KODEL
 - 220 RPC modules

□ LS2: FWD muon upgrade

- $1.6 < |h| < 2.4$, GEM, RPC
 - Funding process



□ 2011 M&O-A

- **21 Ph.D. (Invoice : 217,467CHF) → 200,325.6CHF paid in Sep.**
 - **Mainly due to the high Swiss currency rate (~>25% up)**
 - Shortage of 17,141.4CHF

□ 2012 M&O-A

- **22 Ph.D. were in CMS-DB (Invoice 241.8kCHF)**
 - **20 Ph.D.s were originally nominated (3 out, 2 in)**
 - two Ph.D.s were accidentally joined to the list (1 out only)
- **Proposed resolution**
 - **Keep 20 authorship**
 - Pay 22, 2 reimbursed afterward
 - Pay 22 for 2012, then pay 18 for 2013
 - **Increase authorship**
 - Pay 22 → 22 authors for 2012
 - Increase authorship is necessary because more Ph.D. are joining



- ❑ **Currently 28 Ph.D. are working for KCMS**
 - **12 professors, 16 postdocs (5 are at CERN)**
 - **New institutions and Ph.D.s are joining to KCMS in 2012**
 - **Time to increase M&O-A**
- ❑ **Plan for CMS upgrade during LS2 should be started**
 - **Plan, size of contribution, relevant budget, etc.**
- ❑ **Some major haul**
 - **Revisit**
 - **Bylaw, Postdoc employment, Grad. Students requirements**
 - **Physics group reorganize**
 - **6 PAGs to 3 PAGs (Top, Exotica, Heavy Ion)**
 - **Exchange programs**
 - **Young postdoc exchange**
 - **And more.**