Introduction for Software session

M.Miura (ICRR)

5th Hyper-K Open meeting

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Hyper-K Software Group

- Conveners: M. Miura (ICRR, Japan), C. Walter (Duke, US), F. Di Lodovico (QMUL, UK)
- 42 persons on mailing list.
- Regular meeting is held on Wednesday night in US,UK/Thursday morning in Japan in every two week. We always welcome your participation!
- Aim to prepare MC simulation and analysis tools toward Hyper-K.

Some terminology in this session

- WCSim: Water Cherenkov detector Simulation originally developed by DUKE Univ. for general purpose. Trying to make Hyper-K simulator based on this.
- fiTQun: Reconstruction tool developed for T2K beam ν and atmospheric ν analysis (high energy) by Canadian group. It is *partially* used for SK analysis.
- Bonsai: Reconstruction tool for solar and SN ν analysis (low energy). It is *fully* used in SK.

Why don’t we use tools as SK?

- Because the framework is old fashioned.
  - Detector simulator: based on GEANT3.
  - Language: Fortran for High-E analysis (but use C++ for Low-E analysis, Bonsai).
  - Data format: ZBS
- Difficult to maintenance in future. Step up to (relatively) modern frame.
  - WCSim: GEANT4
  - fiTQun: based on C++
  - ROOT format

Talks in this session

- WCSim (by Okajima): Implementation of HPD performance and prepare for optimization of compartment length.
- fiTQun: Recent developments, including expected Q generation with new scheme.
- Bonsai: first trial to apply to WCSim output.

Enjoy the session!