Solid Software now and then

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2015/03/19

Proposal Stage (2008-2010)

- Early proposals for SIDIS and PVDIS were done with “Comgeant” (geant3 based) and some standalone fortran code to analyze results
- Generator they used mostly fortran code (whitlow fit for eDIS, wiser for hadron, etc.)
- We have a partial record on wiki
- Knowledge are mostly with individuals (Eugene Chudakov, Xin Qian,Peng Chao, Kalyan Allada, etc.)

pCDR stage (2011-2014)

- Simulation
  - GEMC 1.7 and 1.8 (Geant4 based), used for whole SoLID background and rate simulation and results are fed into individual detector simulation as input
  - GEM: “solgemc” which add customized hit process routine for GEM and some modification into GEMC 1.x
  - EC: standalone Geant4 code, take background from GEMC result
  - LGCC: modified GEMC 1.x version, evolved from a standalone Geant4 code
  - HGCC: standalone Geant4 code LGCC used
  - MRPC: GEMC 2.x
  - SPD: GEMC 2.x

pCDR stage (2011-2014)

- Event Generation
  - Stay independent from simulation, pass to GEMC by a text file
  - Convert or wrap previous fortran code to c++, and more
  - A list
    - “eicrate”, c++, moller, elastic, inelastic e and inclusive hadron
    - “single_rate”, fortan, inelastic e and inclusive hadron
    - “sidis_model”, c++, SIDIS
    - “Jpsi”, c++, Jpsi
    - “genTCS”, c++, time like compton process
    - “BH”, c++, analysis code for di-lepton Bethe-Heitler generator “grape-dilepton”

pCDR stage (2011-2014)

- Event reconstruction
  - “libsolgemc”, GEM digitization
  - All other things are in standalone codes at various level
- Analysis
  - Hall A analyzer for tree search tracking
  - All other things are in standalone codes at various level
- Calibration and database
  - Nothing yet

Next stage (2015-…)

- Simulation
  - GEMC 2.x
    - Software installation streamlined with better version control
    - fixes including input from SoLID
    - A lot of new feature
    - Used also by CLAS12 and MEIC
    - Using Geant4.10.0 for latest version 2.2, use Geant4.9.6 and Geant4.9.5 with version 2.1
    - "solid_gemc" add customized hit process routing and compiled GEMC as lib, similar idea to "solgemc"
  - remoll (need more input here)
  - others

Next stage (2015-…)

- Event generation
  - keep independent, add more
- Reconstruction
  - JANA, used by hallD we have a sample “solid_jana” handling flux, the built-in hit process routine of GEMC
  - CLARA, used by CLAS12
  - hallA analyer
  - Others
- Calibration and database
  - CCDB

Other things

- SVN to github
  - has a test repo setup
  - Test conversion and make a plan (Zhihong Ye?)