The user_guide for Sung's analysis code

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Abstract

This document describes how the sung's analysis code use.

Contents

1 Data Analysis Process

All codes for Sung's analysis are located in the following and there are four main folds with the analysis codes :

- /d/home/skpark/ANALYSIS
  - Step1_MakNtuple
  - Step2_PROSS1
  - Step3_PROSS2
  - Q-factor_method

Sung's analysis process composed of three steps, as shown in Figure 1. In the step 1, the root files with the ntuple struction are made from BOS files (Step1_MakNtuple). The step 2 process makes the root files with the basic histograms from the root files made in step 1 (Step2_PROSS1). The plots for polarization observables are made in the step 3 using the root files made in step 2 (Step3_PROSS2). The step 2 also makes txt files which are used as the input of Q-factor method (Q-factor_method). The step 3 process also uses root files made in Q-factor method as the input.

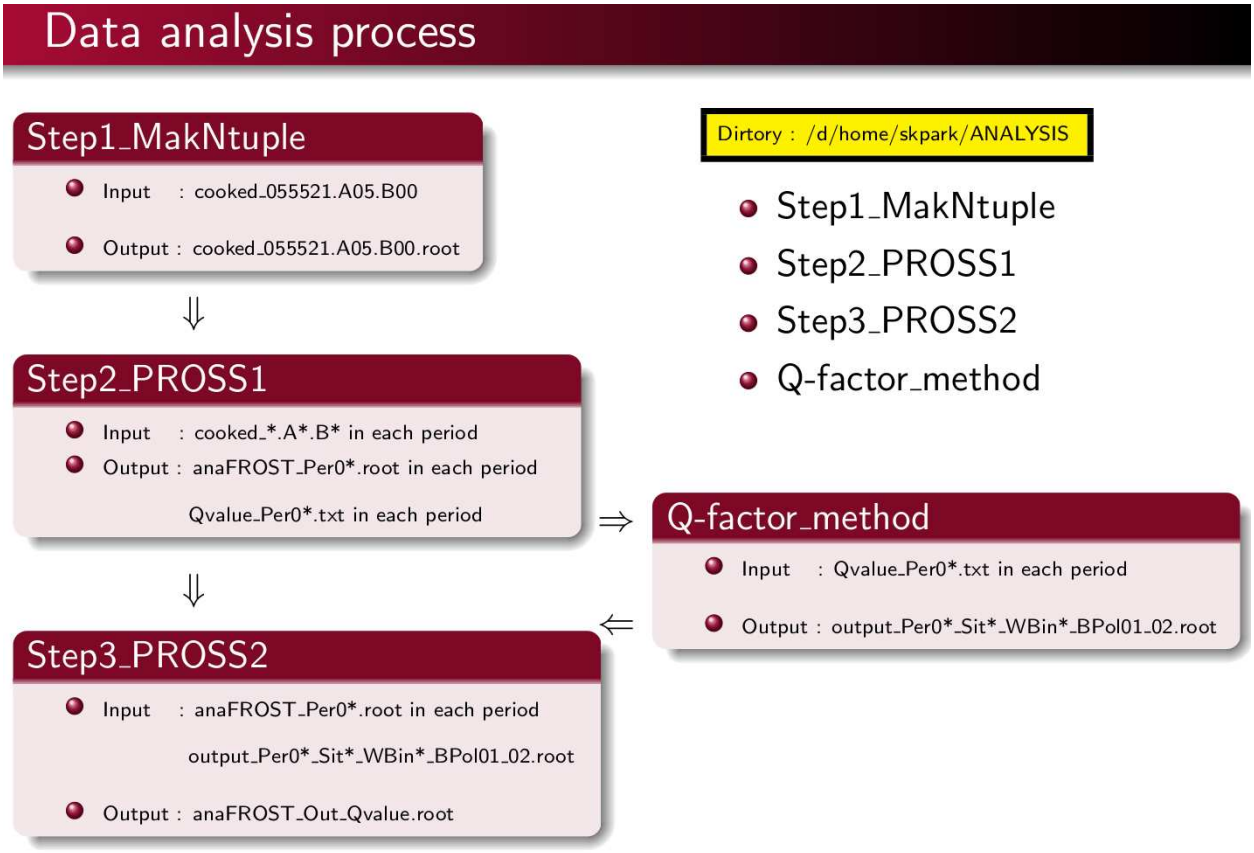

Figure 1: Data analysis process

1.1 Step1_MakNtuple

The original codes for Step 1 are located in /d/home/skpark/ANALYSIS/Step1_MakNtuple. If you want to use the step 1 codes,

1) Go to /d/home/skpark/ANALYSIS/Step1_MakNtuple
2) Excute ./backup
3) In the same fold, you find the fold BACKUP. You copy this fold to your working space.

The output files of the step 1 process are localted in :

- /d/grid9/skpark/ROOT-CIRCULAR/
  - MomC_V2.101_P1R14 for period 1
  - MomC_V2.101_P2R13 for period 2
  - MomC_V2.101_P3R28 for period 3
  - MomC_V2.101_P4R17 for period 4
  - MomC_V2.101_P5R35 for period 5
  - MomC_V2.101_P6R27 for period 6
  - MomC_V2.101_P7R28 for period 7

The run list used is in http://hadron.physics.fsu.edu/ skpark/research/research_oct2712.html
ex) The input : cooked_055521.A05.B00

⇒ The output : cooked_055521.A05.B00.root

1.2 Step2_PROSS1

The original codes for Step 2 are located in /d/home/skpark/ANALYSIS/Step2_PROSS1. If you want to use the step 2 codes,

1) In your working space, copy backup in /d/home/skpark/ANALYSIS/Step2_PROSS1.
2) Excute ./backup
3) In the same fold, you find the fold BACKUP.
4) Go to BACKUP and open the script text, skJob1 to change the environment and excute ./skJob1
   - The variable, START : the starting pariod
   - The variable, END : the ending pariod
   - The variable, TestRun : Selecting the test run (1) or not (0)
5) If you want to submit jobs on the hnpgrid1, qsub skJob2 or if you want to excute this on the terminal, ./analysis1 >& logfile & on the hnpgrid1

6) You can check the working condition using the text file, logfile in the same fold.

The output files of the step 2 process are localted in the same fold and the names are :

- anaFROST_Per07.root for the period 1 (go to the Step 3)
- Qvalue_Per07.txt for the period 1 (go to Q-factor method)

The recent output files are located in /d/grid11/skpark/SungJob/Mar0213_Qvalue_ALLObser.

1.3 Step3_PROSS2

The original codes for Step 3 are located in /d/home/skpark/ANALYSIS/Step3_PROSS2. If you want to use the step 2 codes,

1) Go to /d/home/skpark/ANALYSIS/Step3_PROSS2
2) Excute ./backup
3) In the same fold, you find the fold BACKUP. You copy this fold to your working space.
4) Go to BACKUP and check two link files: AddRoot_Sit and PROSS1_ROOT.
   - ◇ PROSS1_ROOT: the location of the output root files made in step 2 process
     ex) anaFROST_Per07.root
   - ◇ AddRoot_Sit: the location of the output root files made in Q-factor method
     ex) output_Per07_Sit01_02_WBin06_18_BPol01_02.root
5) Open the script text, skJob1 to change the environment
   and excute ./skJob1
   - ◇ Decide the name of the root file made in the Q-factor mathod
     - The variable, SITMIN : the starting topology
     - The variable, SITMAX : the ending topology
     - The variable, WBINMIN : the starting WBin
     - The variable, WBINMAX : the ending WBin

     ex) For output_Per07_Sit01_02_WBin06_18_BPol01_02.root,
     SITMIN=1, SITMAX=2, WBINMIN=6, and WBINMAX=18.
   - ◇ Decide options used in the output rootfile
     - The variable, PerMin : the starting period
     - The variable, PerMax : the endingg period
     - The variable, TarMin : the starting target
     - The variable, TarMax : the endingg target
     - The variable, NumCom : the number of combinations
     - The variable, NumSit : the number of topologies

     ex) If you want to use the output root file with period[1-7], target[2-3], combination[32, 67, and, 45], and situation[1 and 2],
     PerMin=1, PerMax=7, TarMin=2, TarMax=3, NumCom=3, and, NumSit=2.

6) If you want to submit jobs on the hnpgrid1, qsub skJob2 or if you want to excute this on the terminal, ./analysis2 >& logfile & on the hnpgrid1

7) You can check the working condition using the text file, logfile in the same fold.

1.4 Q-factor_method

The original codes for Q-factor method are located in /d/home/skpark/ANALYSIS/Q-factor_method. If you want to use the Q-factor_method codes,

1) Go to /d/home/skpark/ANALYSIS/Q-factor_method and there are three kinds of versions for Q-factor method

   ◇ Qfactor_code: Binning of Situation, Period, WBin, and BPol

   ◇ Qfactor_code_PBin: Binning of Situation, Period, WBin, BPol, and PBin

   ◇ Qfactor_code_NewPBin: Binning of Situation, Period, WBin, BPol, and NewPBin

   - NewPBin[1] = PBin[1] to PBin[5]
   - NewPBin[2] = PBin[6] to PBin[10]
   - NewPBin[3] = PBin[11] to PBin[15]
   - NewPBin[4] = PBin[16] to PBin[20]

2) Copy one of three folds in your working space.

3) Go the fold copied in your working space and check link files: ex) go Qfactor_code_PBin

   ◇ Qvalue_Per02.txt: the location of the input txt file for period 2, made in step 2 process

   ◇ Qvalue_Per03.txt: the location of the input txt file for period 3, made in step 2 process

   ◇ Qvalue_Per04.txt: the location of the input txt file for period 4, made in step 2 process

   ◇ Qvalue_Per05.txt: the location of the input txt file for period 5, made in step 2 process

   ◇ Qvalue_Per06.txt: the location of the input txt file for period 6, made in step 2 process

   ◇ Qvalue_Per07.txt: the location of the input txt file for period 7, made in step 2 process

   ◇ Qvalue_Carbon_g9b.txt: the location of the input txt file for the carbon data(g9b), made in step 2 process

4) Compile Q-factor code on npgrid: ex) make in the fold Qfactor_code_PBin

5) open the script text, WarmingUp_npgrid.sh to change the environment and excute ./WarmingUp_npgrid.sh on npgrid.

6) open the script text, WarmingUp_hnpgrid1.sh to change the environment and excute ./WarmingUp_hnpgrid1.sh on hnpgrid1.