

PHYSICS ANALYSIS GUIDELINES

The guidelines are intended to promote a good practice to increase the efficiency of the physics analysis and review processes.

They can be optimized with time to better serve the Collaboration goals.

COMMON ANALYSIS TOOLS

The use of standard procedures provided as “common analysis tools” by the Collaboration is encouraged.

They do not require a specific scrutiny during the Analysis Review process, except for a consistency check between the proposed study goals and the common tool declared assumptions and range of validity.

After a validation by the WG, a new or updated common tool can be introduced with:

- the approval of the Analysis Review Committee
- the integration into the the CLAS12 framework and validation supervised by the software group
- the explanation of method, assumptions and range of validity outlined in a brief release note

ANALYSIS REVIEW COMMITTEE

An Analysis Review Committee is in charge to promote standardized quality criteria in defining the new analysis tools among the various working groups and run groups.

Their members are nominated by the CCC with a balance among experts and WG/RG representatives.

Possibility: RG Analysis Coordinators ?

SPECIFIC ANALYSIS TOOL

The development of a specific analysis tool is always possible.

It requires a dedicated scrutiny during the Analysis Review.

If it comes as an alternative to a common analysis tool, it should be motivated with a pros-cons comparison.

ANALYSIS CROSS-CHECK

The cross-check of results among independent analyzers is strongly encouraged.

The cross-check focus on the treatment of data (signal, corrections and statistical error) and does not require a full validation of the systematics study.

Advantages:

- provide confidence to the analyzer and review committee
- favor sharing and preservation of data handling knowledge

MONTE-CARLO STUDY

The use of common Monte-Carlo productions is encouraged, to optimize resources and ensure uniform quality standards.

A Monte-Carlo validation procedure, i.e. the demonstration that a specific physics effect can be measured at CLAS12 within the available statistics, is promoted.

Advantages:

- A physics effect (i.e. azimuthal modulation) can be introduced by a weighting or pick-drop event selection from the Born kinematics
- provide confidence to the analyzer and review committee
- with the improvement of Monte-Carlo model, can provide an all-in-one systematics