

ATLAS MC GROUP activities

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The Groups

- Atlas physics working group for MC generators and tuning -> convenors Osamu Jinnouchi, Judith Katzy (DESY)
- DESY responsible for the generator interface software -> software coordinator: Ewelina Lobodzinska (DESY)
- MC ATLAS group at DESY: Judith Katzy, Ewelina Lobodzinska, Cano Ay (Goettingen), Sebastian Johnert (DESY), Sergey Levonian (DESY), Zhonghua Qin (DESY)

Generators used by ATLAS

Main generators for large sample production:

- Pythia6, Herwig/Jimmy for SM processes and shower and hadronisation
- Alpgen for W/Z+jet, (start to use Sherpa for comparisons)
- MCatNLO for top (first validation of powheg)
- AcerMC (top)
- MadGraph for BSM

The rest:

- Interfaces to ~30 different generators exist; mostly for special purpose (black hole, QED radiation, tau decays, B physics,...)
- Generic interface to LHEF standard (only to the one with xml tags) I.e. any generator providing LHEF can immediately be read into athena and showered/hadronised using pythia or herwig.
- Many studies to validate Herwig++; first time considered for mass production of samples:

Generators software strategy

- Use shared libraries for generators as provided by Generator Services (GENSER) from CERN
- Use HepMC to store generator output
- Use LHEF interface for hard Matrix element generators
- Use latest version of codes if possible

Ongoing discussions

- What's the best pdf?
 - CTEQ6.6 for NLO (MCatNLO?)?
 - *LO MSTW for LO?
 - HERAPDF0.1?
- Generator tuning with first data, UE tuning in particular:
 - Influence on various physics analysis?
 - Effect on Jet energy scale and resolution?
 - What are the best tuneable quantities?
- Studies of alternative (new) generators and models
 - Pythia8. Herwig++. Sherpa□