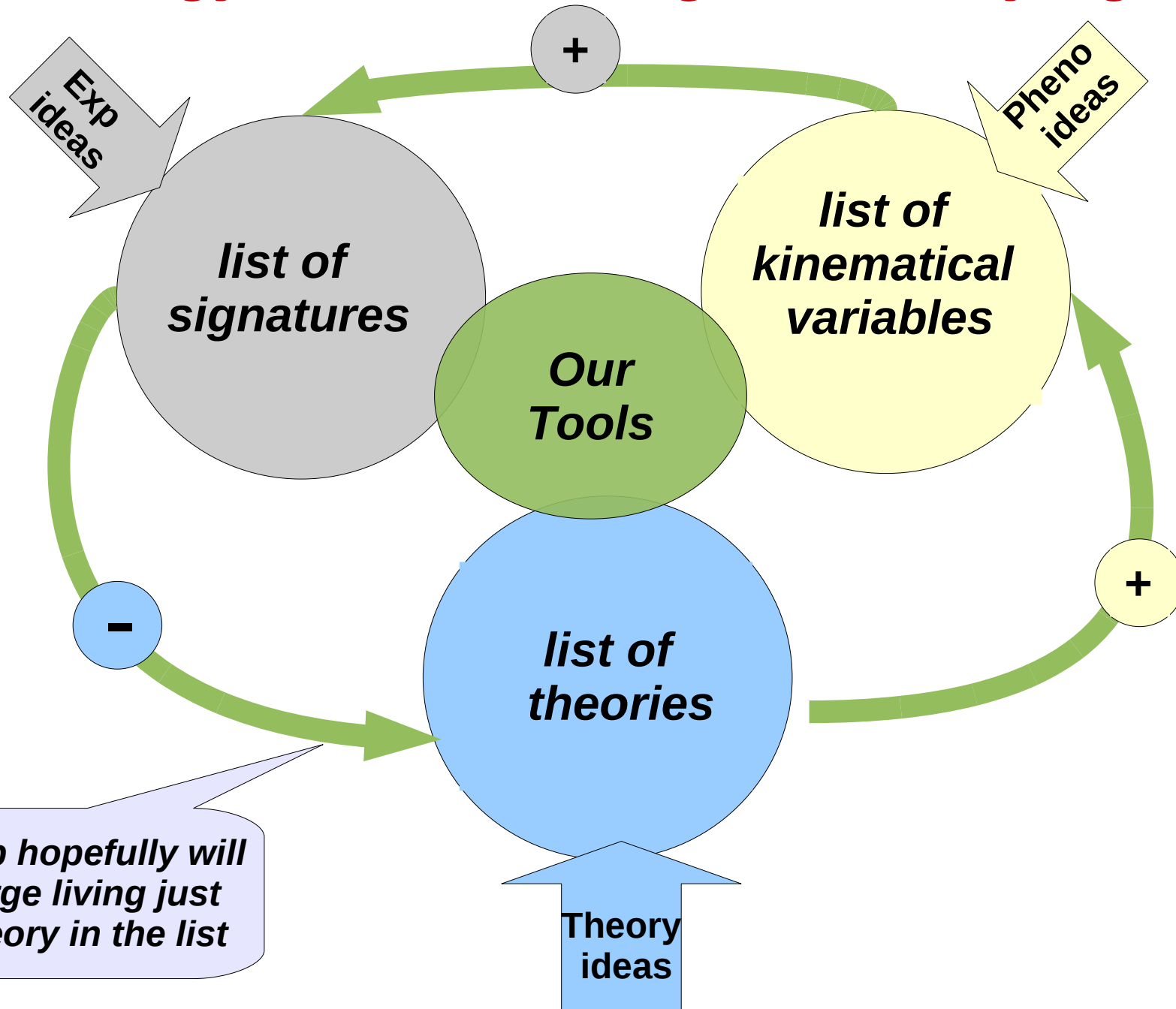


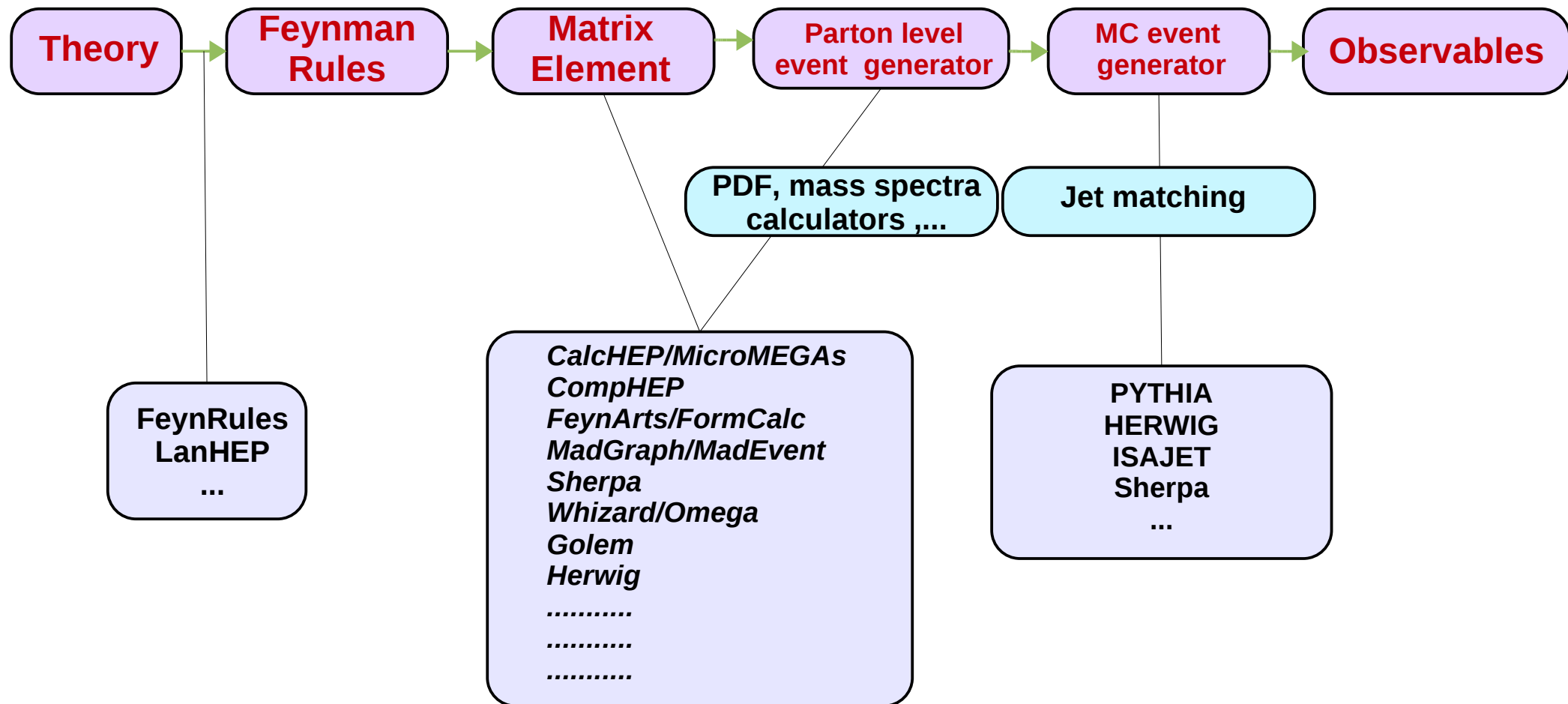
# TOOLS 2010

# Collider Round-Table

# The strategy for delineating of underlying theory



# Tools Chain



# MC Event Generators (used by CMS/ATLAS at present)

- **Multi-Purpose Generators**

- ➔ *PYTHIA6 (in past year v. 6.420, now migrated to v. 6.422)*
- ➔ *PYTHIA8 (v. 8.108, now migrated to v. 8.130)*
- ➔ *HERWIG6 (v. 6.510)*
- ➔ *HERWIG++ (v. 2.3.2, now migrated to v. 2.4.2)*
- ➔ *SHERPA (v. 1.1.2, now migrated to v. 1.2.0)*
- ➔ *ISAJET (v.7.75) (mainly for mass spectra)*

- **Multi-Leg Matrix-Element Generators**

- ➔ *MADGRAPH (v. 4.4.13)*
- ➔ *ALPGEN (v. 213)*
- ➔ *CalcHEP (v. 2.4.5)*
- ➔ *CompHEP (v. 4.5.1 )*

- **NLO Event Generators**

- ➔ *MC@NLO (v. 3.41)*
- ➔ *POWHEG*

# Questions to discuss here

- **LO & NLO cross sections and uncertainty estimation**
  - ➔ *The range of QCD scale variation and selection of central value*
  - ➔ *The way of estimation of PDF uncertainties*
- **NLO generators and their implementation into CMS/ATLAS**
  - ➔ *Signal and background K-factors*
  - ➔ *How effectively NLO tools/generators are being used?*
- **Inter-relation of Tools/Authors presented here**
  - ➔ *What can/should/need to be added to the Les Houches Accord?*
  - ➔ *Convenience/interface to CMS/ATLAS software (e.g. Sherpa )*
- **Bounds from present experimental data, and open questions**
  - ➔ *Universal input/output format a la Les Houches Accord*
  - ➔ *To be interfaced to spectrum calculators*
- **Other topics: your input is here!**