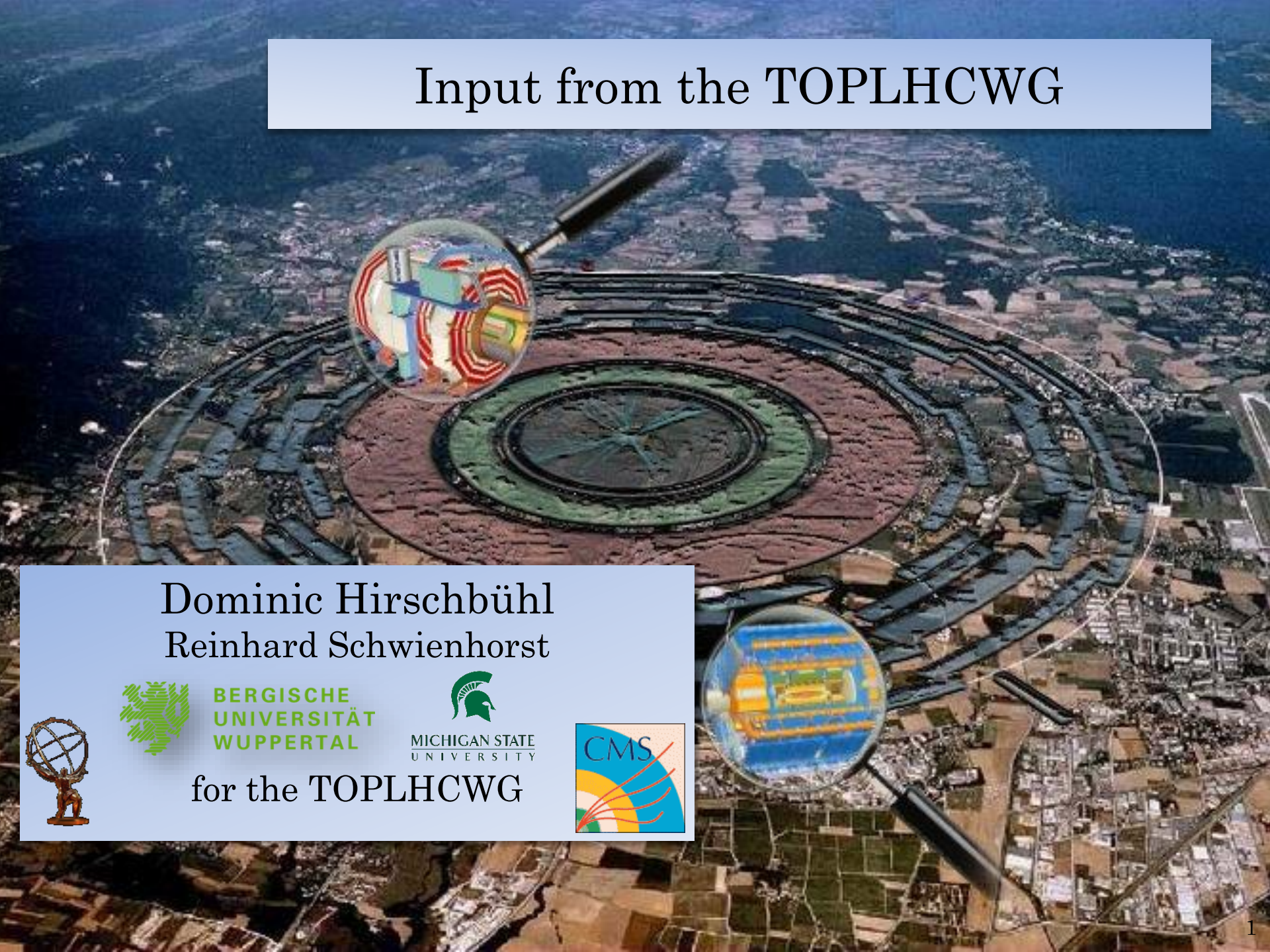
Input from the TOPLHCWG



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for the TOPLHCWG

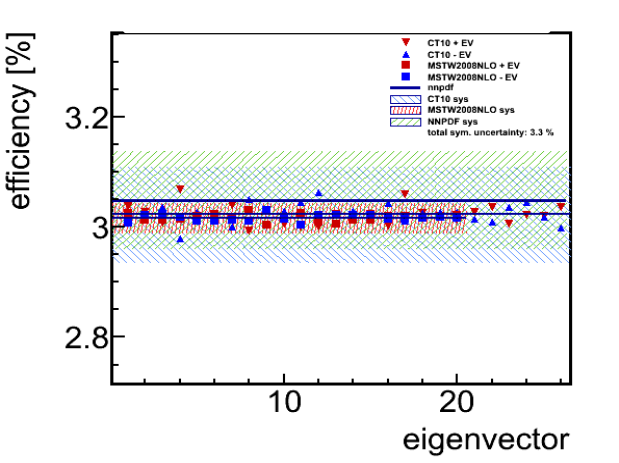
Typical application

For profiling or marginalizing of uncertainties one needs acceptance AND shape information:

- Acceptance is typically done using the full PDF4LHC prescription
  → But central value is taken from MC sample and the corresponding PDF

- For shape uncertainties weights of all EV(~200) needs to be propagated to the whole analysis!
  → No unambiguous way of combining EVs possible.

- Prescription doesn't work for evaluating a significance, or any time ensembles of pseudo experiments are involved



Goal: make PDF prescription simpler and easier to deal with

Wishlist

Correlations

- Correlations across bins/kinematic regions need to be preserved for shape analyses, e.g. 1-jet vs 2-jet
- Correlations between signal and backgrounds might be taken into account

Profiling / marginalization

- Need (orthogonal) nuisance parameters
  → up/down EV approach rather than random replicas

Analyses

- Would like to have an unambiguous way of combining EVs for acceptance and shape
- Avoid dis-proportionate burden on analyzers
  → 20 rather than 200 EVs
- Prefer one PDF rather than evaluating midpoint

Strongly prefer one PDF with a small set of orthogonal EVs (10-20)