



# Summary

- › Presentation meant to be comprehensive on biasing, with a little on Geant4
- › Biasing techniques are meant to simulate “rare event” problems efficiently
- › These techniques have to be tailored to a specific problem or set of problems
- › Event biasing techniques are used in HEP for cavern background studies since many years
- › Could they be used in physics simulation production ?
  - With set of productions dedicated to family of analyses
  - Background events can be seen as “rare events”
    - › As a small fraction survive the selection and analysis process
  - Can their simulation benefit of biasing techniques ?
    - › For example
      - biasing generators to improve the statistics of background events retained by some analyses ?
      - biasing the detector simulation stage to favor topologies that pass the analyses criteria ?
    - › Q/A : Compared to sharp cut at generator level, biased spectra don't lose information
  - **Input from physics analyses would be much appreciated !**
- › Geant4 offers a wide set of biasing functionalities
  - **Users requests are very welcome to keep improving Geant4 !**