TG5: Pointing

Conveners: K Scholberg, J Tseng
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UNIVERSITY OF OXFORD

News over the last year

- Discussion of systematic uncertainties, things that can go wrong
- Algorithms: shape comparison metrics, combinations into skymaps
- Software infrastructure for alert calculations
  - Supernova Neutrino Early Warning Pointing Directed Acyclic Graph
- TG5 workshop 7 Oct 2020
  - Systematic uncertainties, timing, how to connect to hopskotch
- Regular development calls
  - Tuesdays 3pm, alternating with Tuesday SNEWS2 calls
  - Also has been useful for discussions with detector response, firedrills TG's

Systematic uncertainties

- Physics effects, e.g., mixing, non-spherical Earth…
  - Small, < 1%, we have bigger uncertainties to worry about
- Assumed commonalities
  - Detector timing (Vladimir Kulikovskiy, Massimiliano Lincetto)
    - GPS-based UTC appears to be sufficient for μsec synchronization
    - Maximum lightfront delay 40ms
    - Should ask experiments to confirm GPS-UTC conversion: heartbeat sync?
  - Definition of burst time in presence of different background levels
- Shape analysis
  - Some effects already known, dependent on algorithm
  - Will be addressed in snewpdag MC trials

Presentations

1. Jeff: *Developing alert calculations with snewpdag*

2. Marta: *Generating and using lightcurve data within snewpdag*

3. Josh: *Non-radial neutrino emission upon black hole formation in core-collapse supernovae*

4. Kate: *What we can do with more data*