What is Particle Astrophysics?

Breakout session report

AstroParticle Physics European Consortium (APPEC):

● HE γ rays, HE ν, HE cosmic rays, gravitational waves, dark matter, ν mass and nature, ν mixing and mass hierarchy, CMB, dark energy, (AP theory, detector R&D, computing/data, infrastructure e.g. deep underground labs).

STFC PA programme evaluation report:

● STFC funds gravitational waves, VHE γ rays, dark matter (a bit of theory and limited ν astrophysics) funded through PP and Astronomy grants panels.

PAAP 2016 roadmap:

● multimessenger astronomy, fundamental physics with cosmic messengers.

- Laura Kormos (LK)
  - European Consortium rather inclusive; definitions in STFC/PAAP 2016 are rather fuzzy (see previous slide from Laura)
- Discussions
  - Tim Summer (TS): difficult to define PA (particle astrophysics): technique orientiated, also depends on scientific outcome. Eg. DM in both particle physics and cosmology, and hence the need for PA.
  - LK: particle physics has a dedicated funding stream, PA funding falls through the crack.
  - Hartmut Grote (HG): gravitational wave has nothing to do with particles but still in PA in UK, probably because this is a new field.
  - LK: if GW not in PA, where would they be?
  - HG: not clear. Effort to define boundaries on the way.
  - LK: GW is known to reside in PA, so doesn't seem a problem.
  - TS: GW has relevance in SM
  - LK to TS: infrastructure-need-driven definition
  - TS: technology or science-goal driven, evaluated by two separate committees, double jeopardy.

- (continued)
  - TS: … standing up in front of only one community helps, as opposed to in front of two to get funding. Pots of money are fixed.
  - LK: particle physics might be a better construct than PA.
  - TS: Pressure comes from both directions (particle/astrophysics) to identify the program. Difficult to draw the line between technology and science in a project. LHC DM search might claim PA.
- Other thoughts
  - (none)
- Closing
  - Is it good to have the looser definition in PAAP wrt. APPEC?
    - HG: might be better to have better defined boundaries, like in APPEC.
  - (Discussions cut)