

CCAT Meeting Discussion Summary

Statement of Intent (SoI) submission; logistics

- There was a consensus amongst those present that this is timely and we should put in a SoI to PPARC to join the CCAT consortium.
- It was generally thought that this should be before the merger of CCLRC and PPARC on April 1st 2007.
- SoI's now go straight to PPARC Science Committee (SC) and not to the Astronomy Advisory Panel.
- It should outline the urgency of being involved now (CCAT design work underway, instrument work being carved up, science representation etc) and be clear as to when money has to flow etc.
- This SoI is different from the last one since it is now a proposal for a partnership and not to go it alone (as recommended by SC for the last one) and also does not focus so highly on the 200 micron case (?).
- General feeling is that the science case has to be absolutely top-notch; if it gets rejected then that's it for PPARC support for this venture.
- Suggested way forward is for those who gave presentations to prepare key science applications for their respective areas and send to WSH for inclusion within the SoI. WSH will write the first draft of the SoI with input from EIR etc.
- Draft SoI is then circulated to supporters and re-iterated; it was also suggested that some form of "scrutinising committee" be established whose remit would be to provide the necessary aggressive peer review.
- There is a SC committee meeting in November – not sure when the deadline for submission for a SoI would be – probably unrealistic to get done by this date and might have to aim for January. Revise to aim for completion of the SoI by Christmas.

SoI submission; Positives

- The UK is clearly still a world-leader in submm astronomy and will continue this with JCMT/SCUBA-2. If we (the UK) don't join CCAT, we run the risk of having no wide-field facility in 2013, with our only facility being ~10% access to ALMA...
- There is clearly lots of wonderful science that can be done with such a facility that should appeal to the broader UK-submm (delete submm maybe?) community.
- Opportunities for design and construction work within the UK (UK ATC, universities, industry)

SoI submission; Issues

- The SoI is only 2 pages in length; it really has to be clear in terms of what the “killer apps” are, otherwise we will be unlikely to succeed.
- How much of the CCAT Science Case can be addressed by new facilities in the 2007-2013 timeframe (SCUBA-2, APEX, Herschel, limited ALMA, LMT? etc)
- If the UK wants a wide-field facility post-2012 why not keep JCMT open? However, is a JCMT, offering workhorse science at $850\mu\text{m}$ ($14''$ resolution), really going to be still competitive in 2013?
- One question is by focusing on the potential $7''$ resolution provided at $450\mu\text{m}$ by the JCMT, how much useful science could be obtained from the Mauna Kea site with the JCMT operating only at 450 compared to CCAT?
- The case for CCAT should not mention providing the short baseline coverage for ALMA; incidentally it would be perfect to do this (diameter = 2x ALMA dishes) if it weren't for the ACA.

200 micron case

- Several speakers stressed the necessity of $200\mu\text{m}$ as being **key** for the science they want to do...
- Measuring the peak emission from pre-stellar cores where it peaks; some doubt was raised as to whether you can disentangle the temperature/column density ambiguity with this data particularly if the calibration is not accurate to better than 25%...
- No one really knows how difficult it will be to calibrate at $200\mu\text{m}$ but the consensus is that it isn't going to be trivial.
- Resolving the far-IR background at its peak. However, is the chance of getting sufficient high-quality $200\mu\text{m}$ time to get anywhere near to the confusion limit very remote?
- ALMA will not work at $200\mu\text{m}$. In addition to measuring dust emission there are a number of important spectral line tracers that could be observed in this window – so CCAT needs a $200\mu\text{m}$ spectrometer!
- Need to find out how much time would potentially be available at $200\mu\text{m}$; it is an important waveband and we must be prepared to exploit what little time we have when the window opens up. This is an excellent goal but should not be a science/facility driver.
- If we really want oodles of time (relatively speaking) at $200\mu\text{m}$ we should go to the South Pole...

Other notes/questions/issues

- There is not that much heterodyne spectroscopy in the CCAT science case. Most likely as it won't be competitive with ALMA... However, if you had a 40-pixel heterodyne camera then it would be.

- Pursue instrument development work through FP7; first call in early 2007? Why can't this also include direct detectors and readouts? (e.g. KIDs detectors and readouts)