In attendance:

- @AEI (Potsdam): B. Krishnan
- @BRCC: G. Santostasi
- @Tufts: Y. Itoh, R. Prix, A. Sintes, M. Landry, G. Mendell, X. Siemens, M. Pitkin, G. Woan, V. Dergachev, K. Riles
- @UWM: B. Allen, M. Papa


2. MC speedup
   (a) see GM email of June 2 04 for a statement of the problem and suggested solution
   (b) GM volunteers to write injection package for lal that incorporates his suggestions, intends to finish by mid July

3. Hough search with the F-statistic (BK), speeding up LALdemod (XS)
   (a) Currently, Hough is using SFTs, tracking doppler shifts, e.g. 2000 SFTs for H1
   (b) For a long $T_{obs}$, too many SFTs are produced, hitting computer memory limits
   (c) BK suggests doing a Hough search of the F statistic, and sliding these segments
   (d) currently, code to do this is in place, plus an understanding of the master equation is too. Paper written on this. Currently under LSC review
   (e) Yet to be done, and a tough problem (BK): marriage of computeFstat and Hough code
   (f) a rewrite of computeFstat is required; replace by LAL functions. Rome group has faster version
   (g) XS is intending to work on speedup of LALdemod
   (h) LALdemod should take in SFT vectors
   (i) RP suggests changing the convention of SFTs in memory. GM asks if such a change would be backwards compatible. As per BA’s earlier suggestion, make compatible for some limited time-frame such as 1 year

4. SFT format (BA)
   (a) BA has in mind the changes he would like to make and will be updating documentation as he goes
(b) see, at DASWG webpage under Technical docs, T010095.pdf: "Conventions for data and software products of the LIGO and the LSC"

(c) SFT normalization? We agree to follow normalization convention of the document and multiply by \( \Delta T \)

(d) BA polled people at a previous meeting regarding normalization, and all seemed comfortable with this method

(e) We intend to adopt good conventions in document and add what we need

(f) BA to write a reference implementation; BMachenschalk to make LAL version

(g) ML asks about windowing, what has been done? BA: F-statistic analysis shown to be insensitive to sharp flattop vs. no windowing. Note that we highpass the data. BA unsure what windowing applied to S2 funky SFT.

5. Papers: mostly S2 TDS, plus a little on FDS tech docs (all)

(a) this was a long discussion, so the points here are just a few ones that made it down on paper. **Most importantly! See below if you are tasked with an S2 paper edit! Thanks. -Ed.** We waded through BSchutz’s email of Jun 6 04 on how to make the pulsar paper a better one, and discussed it point by point

(b) TDS strength for PRL: these are first directly observed ULs, even if not astrophysical, for nearly all objects

(c) GW we must do the back of envelope check: if no limits on a given pulsar exist (typically because it is in a globular cluster and has negative spindown), these will be the first limits. So, is there a back of the envelope calculation that can be done to set limits on GW waves in any way? i.e. ensure no naivety before sending out to PRL

(d) RP: exclude comment on solid strange quark stars: not strong enough

(e) We agree to ask BO if he can craft a statement on the relationship between our ULs and solid strange quark stars that would not be a lightning rod for criticism

(f) KR: if we make a lot of fuss about those pulsars in globular clusters, and these are the pulsars for which there are no spindowns recorded, are we not highlighting a weakness in our argument? i.e. we don’t expect anything novel about globular cluster neutron stars, so let’s not make too much noise about them

(g) Below are some specific mods for the paper, in relation to the enumerated points in BSchutz’s Jun 6 email:

(h) point four: we agree to add extra column in table to include \( \epsilon \) spindown limit, but in keeping with de-emphasizing the globular clusters, we decide not to make the suggested bifurcation into glob. clusters and all other pulsars

(i) Table: remove individual IFO limits? Yes. Remove distances? No.

(j) point 7: we decide to keep equations 2.3 and 2.8. KR wants to lose even more, and lists the relative importance of what we want to highlight 1) instrument sensitivity, 2) the fact that 28 pulsars have direct limits, and then 3) method. So, KR prefers written explanations and minimizing number of equations.

(k) ML to write detector stuff and opening. Could add strain curves

(l) MAP to cull noise estimate/analysis section

(m) BA agrees to craft final physics argument - the strength of the paper for PRL
GW to modify abstract and figures
SA to add and subtract references as needed (at least review and suggest)

Could RDupuis please confirm that for the hardware injection analysis, that the phase was properly subtracted before marginalizing?

now, FDS technical docs:
KR - test LALdemod with extreme cases, test to breaking point
MAP: these working documents are intended to guide reviewers, and lead questions as to what to ask. Right now they are not aware of what we are doing.

6. A better ephemeris for Sco X-1? (CM, VR)

CM and VR visited D. Steeghs at Harvard
CM reports Steeghs may produce new and better ephemeris for Sco X-1 (last one made is from 1970’s), and improve errors. However, accuracy we require is better than they require: they can do longer measurements but that would help us but not them. Steeghs has proposal for telescope time next year (some form of LSC statement on the usefulness of these data to us?). There is also some existing data that has been taken but not analyzed. Analysis may be carried out at Tenerife. Unfortunately this will not impact the amount of data that CM can analyze (computational time scales at $t^5$).

Analysis of optical data from Sco X-1 will be made in coincidence with x-ray observations, looking for accretion flares. Phase delay in measurements may improve ephemeris by order of magnitude.

CM confirmed he is correctly interpreting existing ephemeris

Next telecon:
Tuesday, 15 Jun 2004 at 08:00 PDT (10:00 CDT, 15:00 UTC, 16:00 BST, 17:00 CET)