

Subject: Re: [Aligo_sus] [Fwd: SUS questions]
From: <k.strain@physics.gla.ac.uk>
Date: Fri, 19 Sep 2003 11:35:25 +0100 (BST)
To: <aligo_sus@ligo.caltech.edu>
CC: <romie_j@ligo.caltech.edu>

Dear All,

I'm a bit out of touch this week but will make a few comments in case they are helpful - (In all cases I am brief, but we can pick up loose threads later.)

1) Can SUS now reasonably decide on the damping approach for the Mode Cleaner suspensions -- specifically, can a commitment to use Eddy Current damping be made, or (less attractively from the LASTI point of view) confirm that OSEM damping will be used? If not, what needs to be done to make that decision and what is the time scale?
Calum and I worked through this a little - we have a draft document which will cover the situation until we prepare for a review or soemthing. The conclusion is to make some allowance for eddy current damping in the MC suspensions, but we can probably avoid using it.

It turns out to have little implication for LASTI as sensor noise would not be much above thermal noise (total noise amplituded up by 3/2 from memory - and seismic noise is likely to be worse at LASTI - by rumour).

2) Can a decision on the actual hanging masses be made now for all suspensions? Probably the quad is the only real question here, and I think it should be possible. Does this allow a more definite actual weight for the quad, including structure? if not, what is the time scale for resolving this question?

Again Calum and I talked this over and made a proposal to keep 25% contingency here to Dennis who seemed to approve wholeheartedly. I am very much against pinning down the moving mass too tightly at this time.

5) Relatively unrelated: I think we should have a plan for the ribbon/fiber downselect and a date for it. We touched on this at the last telecon -- are there differences to the optic flats or other constraints that set a need date for a decision? Are the criteria clear for a technical decision as well as for an evaluation of the risks (fabrication, installation, repair)?

I'd agree that an early decision is valuable, but that we should put "unrestricted" resources into ribbon/fibre development first. (Not make a decision on bad evidence) - we can gain as much in thermal noise by modest improvements in this area as by wholesale redesign of suspensions, at much greater expense. Without knowing the numbers I'd guess we have under resourced this key area so far.

Cheers,

Ken

David