

## **THERMAL NOISE EXPERIMENT PROGRESS UPDATE DEC-JAN**

To let you see how the project is going and help me understand what is still to be done, here is an overview of progress for the Thermal Noise Experiment mechanical design.

### **1. Completed Parts:**

- 1.1. Silica Upper and Lower Masses (from SpanOptics and REO respectively)
- 1.2. Aluminium Upper and Lower Masses (from CRK)
- 1.3. Fibre Clamping Jig (IGR W/S)
- 1.4. Dummy suspension for testing silica ear welding (IGR W/S)
- 1.5. Cutting of Bosch section for tanks (IGR W/S)

### **2. Parts to be completed imminently:**

- 2.1. Stainless Steel Blade Wire Clamps and Wire Breakoffs for the January test suspensions (Physics W/S)
- 2.2. Wire Jig Parts (CRK)
- 2.3. Blades (AccroFab)

### **3. Schedule (Test and Assembly):**

January 04 - Fibre Pulling to 550mm length and test welding on prototype silica ears. (GC, AG)

January 04 - Measure wires and complete Test Assembly of Aluminium Suspension (in Semi-Clean Room) (MPL, MVP)

Mid/end March 04 - Installation of Fixed Breakoff Aluminium Suspensions into Tank. (MPL, MVP)

End March 04 - Welding of Silica Suspensions (GC)

End March 04 - Installation of Blades and Reaction suspension (MPL, MVP)

Early April 04 - Installation of two Silica Suspensions (MPL, MVP, GC)

### **4. Schedule (Manufacturing):**

Jan 04 - Manufacture crude Wire jig baseplate for testing aluminum suspension (IGR W/S, asap)

End Jan 04 - Order Silica Ears (SpanOptics, delivery mid-March)

End Jan 04 - Order ECD/Upper Mass Catcher Assembly (CRK, delivery early march)

Start Feb 04 - Order parts for Silica Welding Rig/Installation Jig (CRK, delivery mid-march)

Start Feb 04 - Order miscellaneous parts for suspending the fixed suspensions and parts for Mounting Unit Lower Mass (Physics W/S, delivery early/mid-march)

Early/mid March 04 - receive final BWC and breakoff parts for Alu suspensions (1st batch received mid-Jan 04).

### **5. Outstanding Designs**

5.1. The Lower Mass of Mounting Unit must still be designed (Ken/Mike, can you look at this soon) – Meeting 9<sup>th</sup> Jan – Design Finalised!

5.2. Design of Acrylic template for bonding silica ears dependant upon fibre properties

### **6. Notes**

6.1. As you will notice January is quite a key month as during this month it is critical that we can confirm that:

6.1.1. We can pull fibres of length 550mm - as this finalises the

dimensions of the Wire Jig baseplate and the Welding Rig/Installation Jig

6.1.2. We can weld easily to the prototype ears - as this means that we can go ahead and order an ear design which I have already completed (i.e. no redesign time required!)

6.1.3. We can test suspend an aluminium pendulum and check that there are no changes needed to the design.

6.2. As I am to be in CalTech from January 25th to March 1st. I am preparing the manufacturing drawing packs to be ready to go assuming all goes to plan. I will also bring copies of the Solidworks files to California as a backup in case design require altering.

6.3. Mike P - I will require your help in sending any redesigned parts for quotes and for manufacture in good time so we can stay as close to the schedule as possible.

6.4. Drawings for the mounting unit assembly will also have completed whilst I am at CalTech, unless a design in finalised in the next two weeks.