Reminder: We meet tomorrow at 1:30 - 3:30 in the Fujii room.

Agenda: Subcommittee reports on schedule, manpower, and dollars. We will start to put together the individual R&D items for the Structure Design, Manufacturing and QC, Operations/Processing, and Theory. This includes schedules for use of the test facilities at the NLCTA, Windowtron, and elsewhere as required.

-Dave
Hi Nobu,

Very good. We are having a number of continuing discussions here at SLAC on the planning of the high-gradient R&D, just as you on the MAC instructed us to do!!

We will have a summary meeting tomorrow, and will indeed have some comments for what our opinions are on the TxxxVQyF sequence. We will send these to you along with notes from our discussions. It would be good to plan to hold a video meeting on Thursday/Friday. Will that be ok with your side?

More later,
Dave

-----Original Message-----
From: Nobu Toge [mailto:toge@lcsdev.kek.jp]
Sent: Monday, October 23, 2000 5:57 AM
To: Wang, Juwen; Adolphsen, Chris; Cornuelle, John C.
Cc: Burke, David L.; toshiyasu.higo@kek.jp; toge@lcsdev.kek.jp
Subject: High-power Test Structures by KEK/IHI

Hi, Chris, John and Juwen -

Nobu Toge from KEK here. The IHI folks are finally getting up to speed in precision fabrication of the so-called F-type (flat-type) disks and we at KEK are right now trying to re-evaluate the whole schedule for the fabrication and bonding assembly of the test structures; i.e. the ones to be fabricated *and* diffusion bonded in Japan, then tested at SLAC.

At this stage we would like to ask your opinion on the following two points -

1. What are the relative priorities of the short-, mid-sized- and long structures for testing, and what is your preferred "delivery" dates from KEK? As you started running DS2S and DDS3 in late September, we presume you'd be accumulating well over 1000 hrs by the end of this year, and might be interested in switching to another pair of test structures in Feb or March (... or may be much sooner ??)

You already have bonded the first short N-type structure (vg = 5 %). The next batch (100 N-type disks; vg = 5%) will be shipped from KEK to SLAC soon. We presume that they'd be your natural next candidate structures to process. In that case would there be good points or little points in our (KEK/IHI) working very hard to deliver you a couple more 5 % structures with F-type disks early next year? You might be more interested in having 3 % type ones or something else... In that case, "now" is the right time to speak up. Missing such things will result in our having wrong structures at a wrong timing.

2. What is the overall strategies and time frame for scanning this Vg vs L space after all? We have been kind of avoiding this question for a while, since setting up the production line or the high power station to work with has been our first priority. However, now, we'd better revisit
this question, since our engineering and industry cohorts had better hear exactly how hard they have to work, and understand why. Do you have any records of your internal (SLAC) discussions or memo or whatever you can share with us (KEK)?

Discussions on the item 2 can take some time, perhaps worth another set of TV confs several times. However, as for the item 1, I'd appreciate if we could converge fast, e.g. within a few days or within this week.

Thank you for your attention on this matter.

- Nobu Toge (toge@lcdev.kek.jp)
The SEM may be able to look at the iris one cell into the first short RF gradient test structure, T20VG5N. It will require some fastening to hold it at the proper angle.

There was some disagreement about whether the SEM observations of the test sample (traveler) that went along with T20VG5N were made of the correct side. This will be determined later.

Ed discussed the proper RGA to install in NLCTA with Ed Wright and Marc Ross, and they reached an agreement. The MKS unit is presently on backout.

Ed has not looked at the Windowtron noses in the past with Auger. To do this will require a service call on the XES machine to obtain a more precise beam for imaging. The best time to do this is in January, 2001.

Agreement was reached on how to section the remaining higher group velocity portion of DS2 to look at iris damage. A non-contact technique will be used to measure the iris dimensions. Orientation marks will be made on the parts so that any orientation-specific information can be retained. Ed will then look at the iris inner surface with the SEM.

For the Megasonics and High Pressure Water cleaning tests, Ed prefers the 1" diameter test pieces that have been utilized in the past. They have a hole for handling, a 1 cm2 raised area, and can be numbered for control. Ed proposes that they be cleaned, weighed to one microgram accuracy on their balance, AFM checked, Megasonics or High Pressure Water cleaned, weighed again to determine if any material has been removed, and then AFM rechecked. Chris Pearson will turn the parts on a lathe to obtain an 8 μinch or so surface.

Keith mentioned that the ultra-high purity water may etch the copper surface if it is moving above some unspecified velocity, possibly impacting both the Megasonics and High Pressure water tests. We will need to setup a test with both low and high velocity water.

Dave has asked/will ask both DESY and Cornell for High Pressure Water Rinsing assistance, as opposed to (re)developing it at SLAC. Carl Rago will look for the Greg Mullhollan high pressure water setup used for gun cleaning that was last resident in Building 6 and report back to Keith. We also need to see if there is any data from this effort on the corrosion of copper by ultrapure water.

Dave proposed that we prepare an overall plan including the decision points of where we want to go with the work of this subgroup. Dave also would like a similar plan for the production of a "particle-free" structure. There was considerable discussion of how to simplify this by making it more of a "Chevy" test instead of a "Cadillac" test.

Keith asked if we could feed filtered hydrogen into a structure during brazing and keep it under a positive pressure with respect to the ambient in the furnace. Chris Pearson thought that this was feasible.

Chris Pearson outlined the test he is making with respect to measuring the hydrogen gas content after brazing and different amounts of vacuum firing/baking. Ed commented that the results will be different with a vacuum on both sides of the part in question versus air on one side and vacuum on the other.

Minutes by John Cornuelle
Dave:

I sent this to Daryl earlier today:

At our RF breakdown sub-group meeting, Ed Garwin asked about obtaining niobium samples from Cornell that are representative of the point Padamsee made about Auger analysis - that only with Auger could they see non-niobium in the starburst areas (EDX did not see anything). Ed wants to duplicate the Cornell work to see if the same thing applies here. Since Auger is very slow compared to EDX, he would prefer to use EDX if it can be shown to work.

Have you or Lisa had any contact with Padamsee on this?

Daryl responded that he thinks that he is on hold until you make the initial contact with Padamsee. Is this OK?

Thanks,

John C.