

SuperB DCH R&D meeting – 28 Feb 2011

### Proto 2 - structure



Construction of the mechanical structure has started in the LNF mechanical shop

The external case -including the end flanges - will be outsourced (2500mm is too long for the LNF shop). We have a quote. A purchase order is being issued this week

## Proto 2 - míscellanea



- Permaglass endplates ready
- $\square$  25µm  $\oslash$  gold-plated Molybdenum wire ready
- □ Clean room ready in ~1 week
- Some tooling for stringing (pulley, weights/dynamometer) to be prepared

Proto 2 - wire tension

Use formula

to calculate the tension *T* to apply

to a wire of radius r, density  $\rho$ , length L for having a gravitational sag S.

#### **\Box** For *L*=2500mm and S=200 $\mu$ m I obtain:

 $=\frac{g\pi r^2\rho L^2}{\rho L^2}$ 

 $T_{A/}$ =53.0g;  $T_{MO}$ =21.5g;  $T_{W}$ =39.1g;

Au plating weight is included for W & Mo wires Creep measurement on aluminum-5056 wires

KLOE memo # 138 February 1998

### Aluminum creep

- scaling up our 1.5 years long KLOE measurement of AI creep by the ratio of wire lengths, we should expect an elongation  $\delta L = 0.8 \times 2.5 / 1.7 = 1.2$  mm, or a negligible change in T by  $2\delta L/L \sim 0.1\%$ 



# News on Mechanical structure

- Discussion in January with engineers from RibaComposites (Faenza, Italy) for a mechanical structure in CF composite
- The quote for the whole work is well within our WP estimate
  - including endplate drilling
  - including complete engineering study
- Using high-modulus, high-strength fibers can build O(4-5)mm thick endplates

## Mechanical structure (cont.)

- I want to ask for a light-weight solution especially for the inner cylinder (cfr. presentations at the DCH meeting of Jan. 31<sup>st</sup> 2011)
- Need to understand if CF rod struts à la KLOE are acceptable for DIRC/EMC
- If not, study if struts can be removed after stringing and inserting the outercylinder panels



 to avoid the pre-tensioning machinery used in BABAR