

Short summary of ILD-TPC mechanics meeting on 11.03.2010 at DESY, Hamburg

P. Colas¹, D. Attie¹, M. Riallot¹, M. Carty¹, T. Behnke², K. Dehmlt², V. Prahl², R. Volkenborn²

¹) CEA Saclay ²) DESY Hamburg

- discussed radiation length:
 - inner tube wall 1%
 - gas 1%
 - outer tube wall 2%
 - = all in all 4%
- Acceptable tolerances (still need to be discussed in detail)
- long term movement of the TPC caused by vibrations / swinging etc. within 10 μ m, achievable?
- HV supply will be with an absolute maximum of 100kV, more probably 80kV
- beam operation at atmospheric pressure or 10mbar overpressure at most

Short-term objective

1. Getting arranged an EDMS folder / project name (*in progress...*)
2. Get into contact with companies... (*DESY and CEA*)
 - a) for further research in test measurements of sandwich structures / honeycombs
 - b) to purchase honeycomb test pieces
 - c) to find alternatives for honeycomb → foam structure?
(much better isotropic behavior)

→ Meeting with an engineer group from the TU Hamburg-Harburg planned on 20.04.2010, which has expertise in measurement of sandwich structures, FEM analyses etc.

3. Honeycomb research regarding: (*DESY and CEA*)
 - a) source (contacting companies for test pieces)
 - b) test measurements (by companies / our self)

c) important material properties

- shear modulus
- elastic modulus
- Poisson ratio

4. Complete sandwich structure research regarding: (*DESY and CEA*)

- a) Organizing simple and different test sandwich structures (source? contacting companies for test pieces and/or laminating or laminating by our self)
- b) test measurements (by companies / our self)
- c) important material properties (see 8.c)

Medium-term objective

5. Simulating of different overpressures (1-10mbar) inside the fieldcage
6. Rethinking of a possible design of the endplate, i.e. in detail: the thickness and the material
7. Prepare at least a few (three?) possible fieldcage models regarding the material and its thickness of the tube wall ((in)-dependent of the design of the endplate?)
 - a) calculating an additional mass factor for
 - power supply
 - cooling system
 - HV supply
 - general cables
 - gas system
 - laser system
 - electronics (modules etc.)

Long-term objective

8. DBD by end of 2012
9. ...?