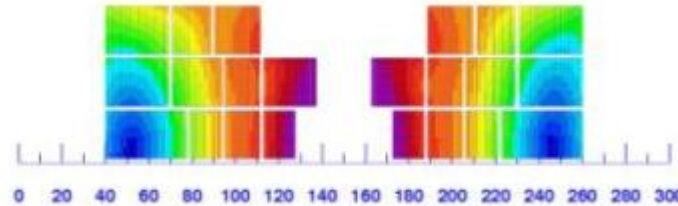
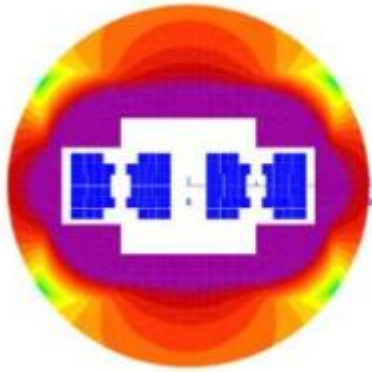




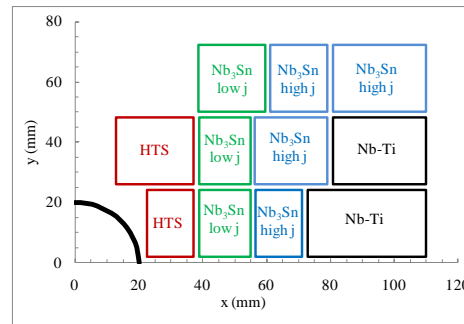
[www.cern.ch](http://www.cern.ch)

# Malta Workshop: HE-LHC @ 33 TeV c.o.m.

14-16 October 2010



Material	N. turns	Coil fraction	Peak field	$J_{\text{overall}}$ (A/mm <sup>2</sup> )
Nb-Ti	41	27%	8	380
Nb3Sn (high Jc)	55	37%	13	380
Nb3Sn (Low Jc)	30	20%	15	190
HTS	24	16%	20.5	380



**Magnet design (20 T): very challenging but not impossible.**

300 mm inter-beam  
Multiple powering in the same magnet (and more sectioning for energy)

**Work for 4 years to assess HTS for 2X20T to open the way to 16.5 T/beam .**

**Otherwise limit field to 15.5 T for 2x13 TeV**

Higher INJ energy is desirable (2xSPS)

**The synchrotron light is not a stopper** by operating the beam screen at 60 K.

The beam stability looks « easier » than LHC thanks to dumping time.

Collimation is possibly not more difficult than HL-LHC. Reaching  $2 \times 10^{34}$  appears reasonable.

The big challenge, after main magnet technology, **is beam handling for INJ & beam dump:** new kicker technology is needed since we cannot make twice more room for LHC kickers.



Age is an issue of mind over matter.  
If you don't mind, it doesn't matter.

Mark Twain