

# **Internal Review of DFH** DFH in WP6a an Master Plan

A. Ballarino



16/06/2020

# **Table of contents**

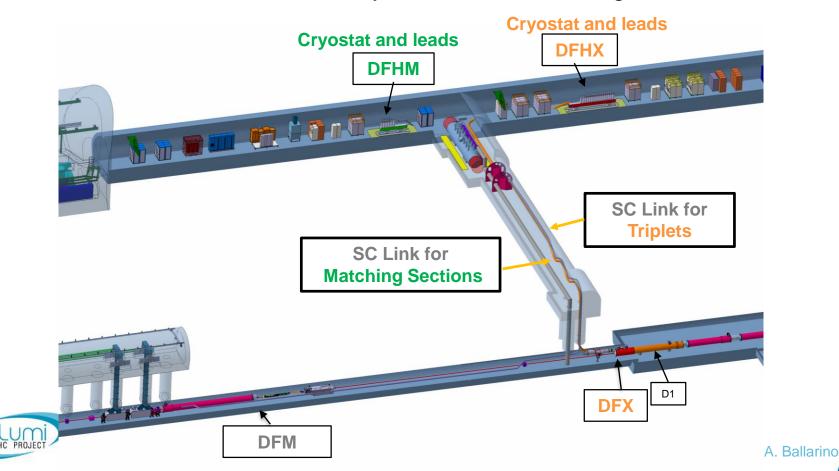
DFHX and DFHM in WP6a

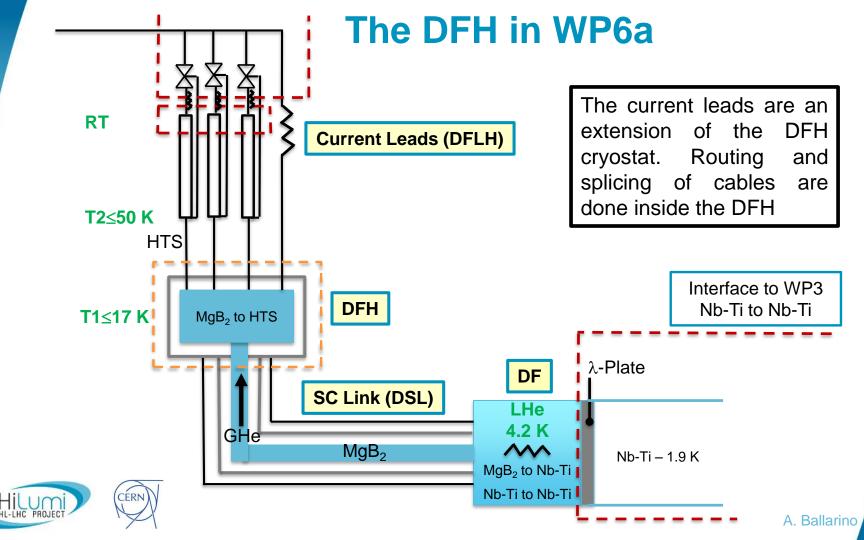
- DFH in WP6a: from Demo 1 to series production
  - DDFH in Demo 1 and Demo 2
  - Prototype System Test
  - Series qualification
- DFH in WP6a Master plan



## **DFX and DFM in WP6a**

DFH and DFHX: cryostats in the new UR galleries





# **DFH in the R&D WP6a program**

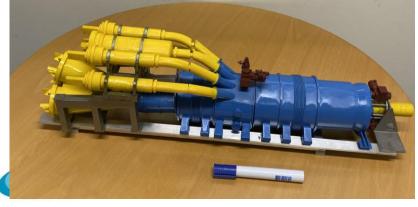
#### Conceptual Baseline Design in summer 2019 (CDR Nov. 2019)



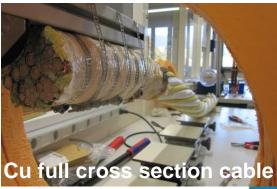




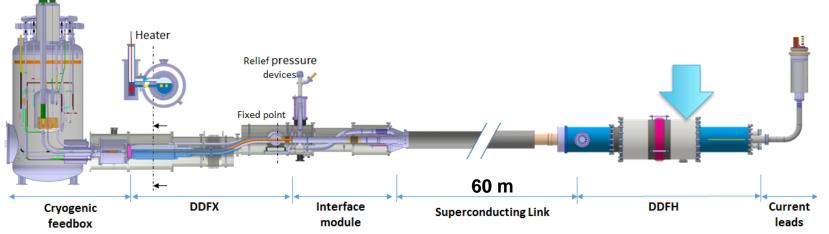
#### **Current leads in horizontal configuration**







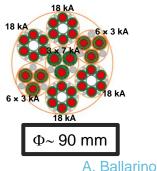
# FH in the R&D WP6a program – Demo 1 and Demo 2



Demo 1: one pair of 18 kA HTS cables, prototype 18 kA HTS HL-LHC Current Leads. One power converter – powering from feedbox. Tested in March 2019

Demo 2: full cross section MgB<sub>2</sub> cable for Triplets, prototype 18 kA HL-LHC HTS Current Leads (same as Demo 1), simultaneous powering of several circuits – powering from feedbox and from DDFH. Tested cryogenic control

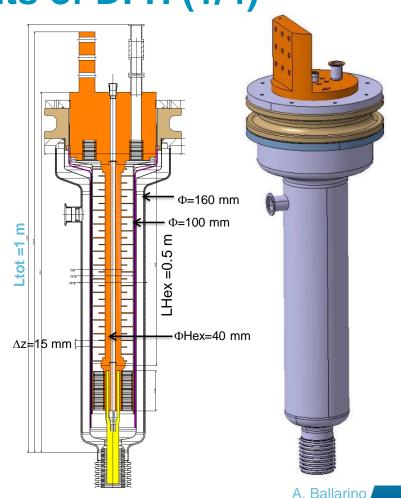




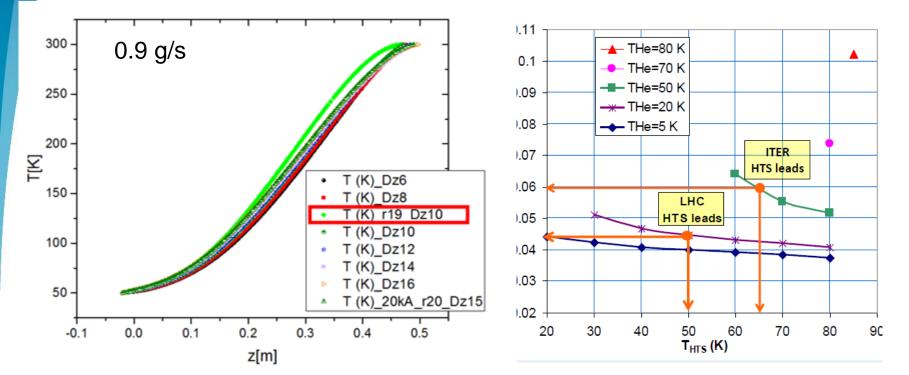
### **Electrical components of DFH (1/4)**

### **HTS Current Leads**

Conceptual design presented at the International Review of Cold Powering, in July 2017. Since then, two 18 kA current leads produced at CERN, with the Main Workshop, and successfully tested in Demo 1 and Demo 2. Design based on LHC HTS current leads.



# Electrical components of DFH (2/4) HTS Current Leads – 18 kA Prototype





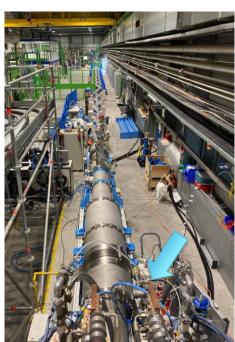
# **Electrical components of DFH (3/4)**

#### **Current Leads**

Current Leads Demo 1 and Demo 2, 18 kA - no humidity







### SC Cables' routing and splices





Demo 2

# **Electrical components of DFH (4/4)**

- Instrumentation routing and extraction from cold mass validated with Demo 1 and Demo 2 (more than 150 signals in Demo 2)
- Baseline on instrumentation signals available.
   Final instrumentation location and number of signals (in particular number of T sensors) to be reviewed after Demo 2



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### **WP6a Master Plan**

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 Future milestone

Future dates FC

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### **WP6a Master Plan**

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A. Ballarino



# Thanks for your attention



