Measurements of Quench Propagation Velocity on cables at the CERN Fresca test station

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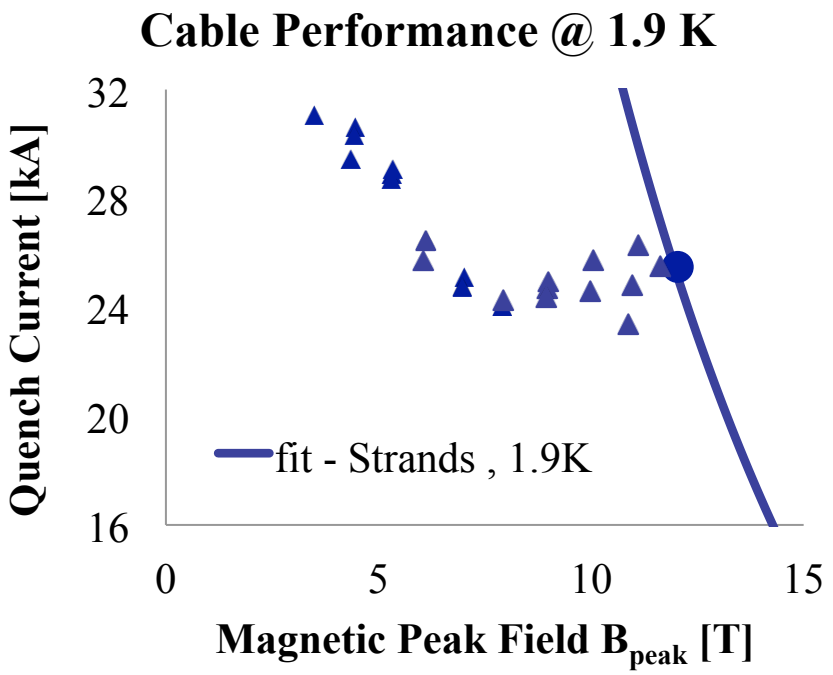
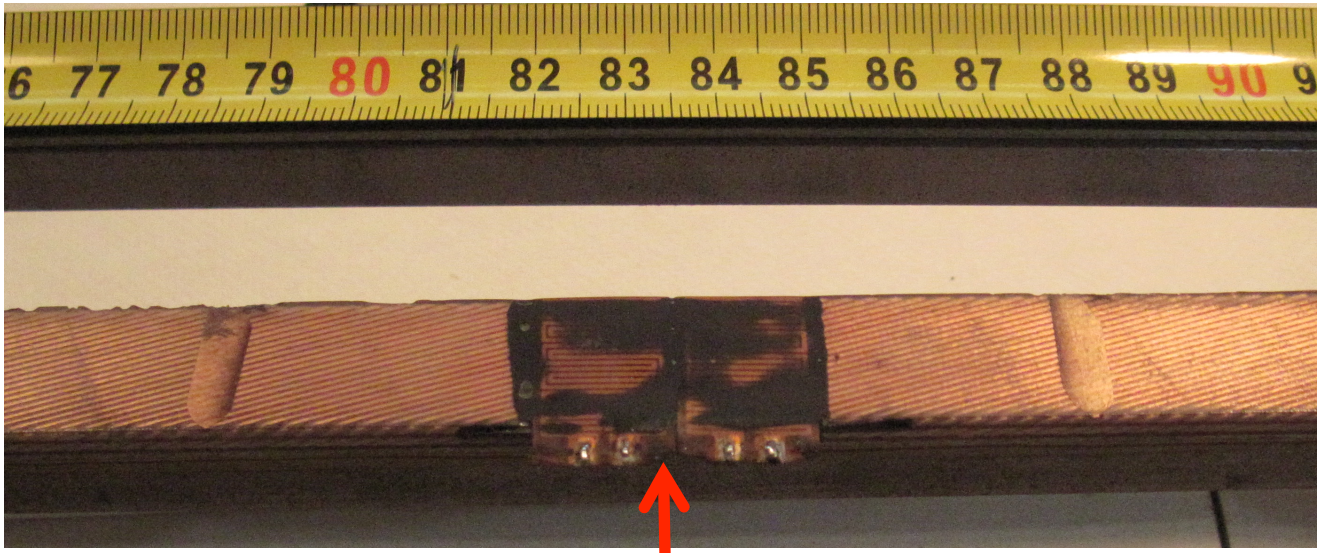
Topical meeting on QXF quench protection

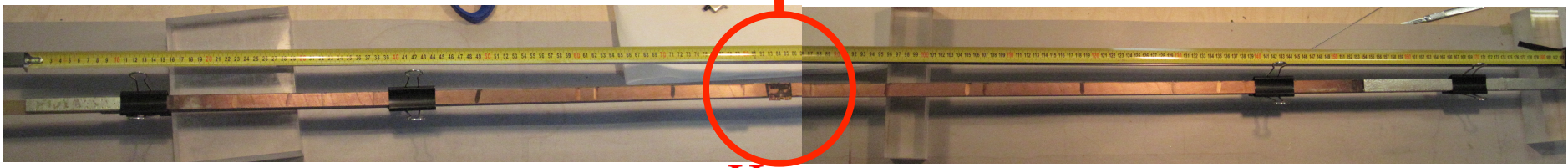
Sample Tested

- Last month, in the FRESCA test station, the first measurements of quench propagation velocity in a Nb_3Sn cable sample were carried out
- The cable tested was developed for the CERN 11 T dipole magnet and it was based on the 108/127 RRP wire:
  - Strand diameter 0.7 mm, number of strand 40;
  - Transposition pitch 100 mm, keystone angle 0.78°, width 14.71 mm, mid-thickness 1.25 mm
  - Core: 316 L, 25 µm thick, 12 mm wide

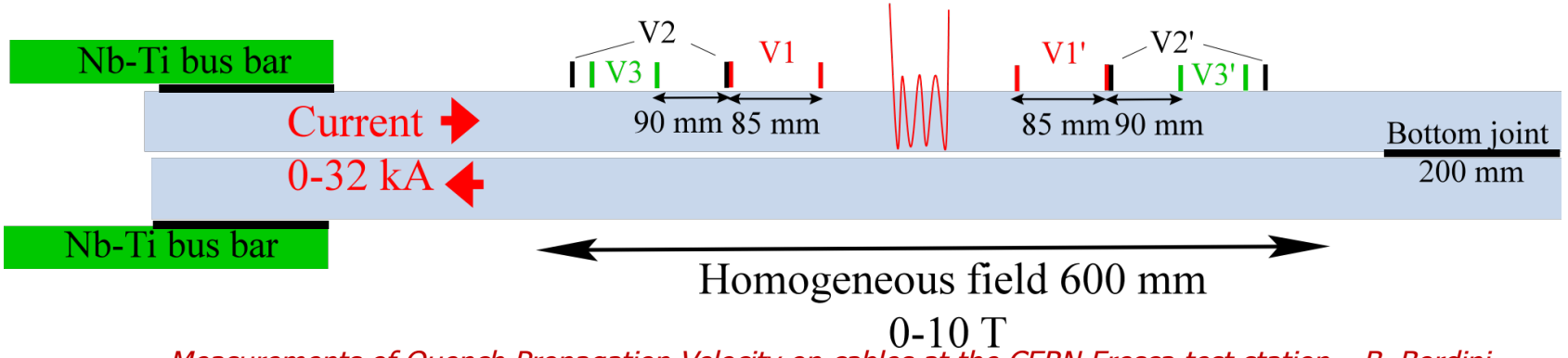


Set-Up

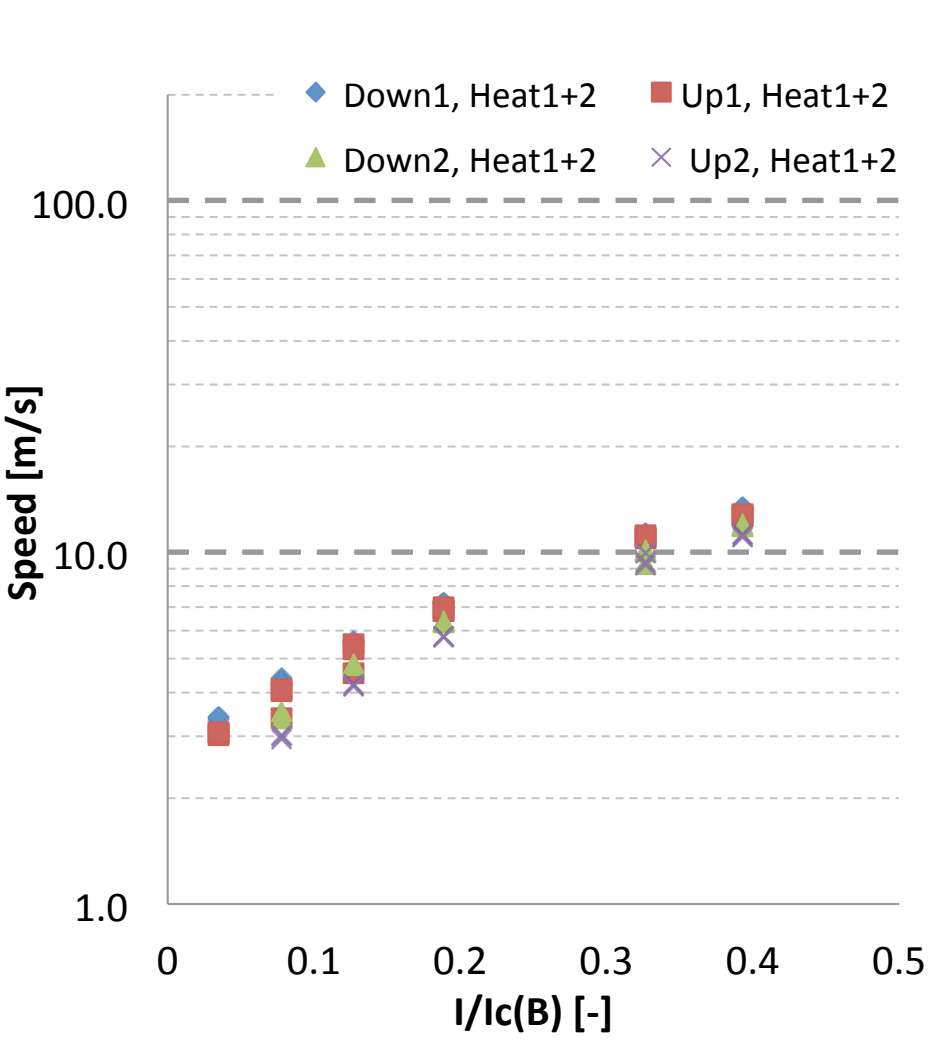


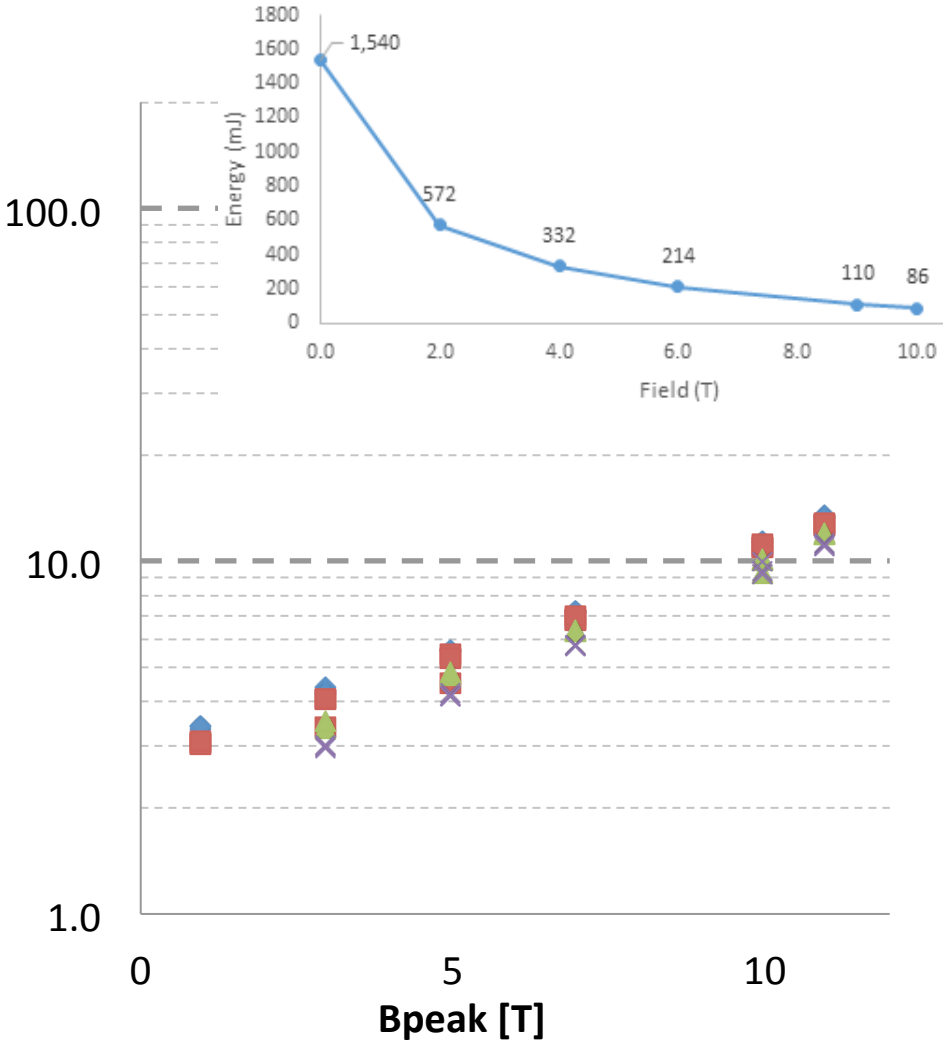


Heater



Preliminary Data Analysis
12 kA, 1.9 K





Paper at ASC 2014 by A. Wuis and al.

Next Measurements

- In June, measurements will be carried out in FRESCA by using the QXF cable based on the 0.85 mm PIT wire
- 2 samples have been already reacted
- The heaters will be impregnated with the samples
- The tap locations will be optimized for quench propagation velocity measurements
- Paper at ASC 2014 by J. Fleiter et al..