

3H-04

Topics of the session “Properties beyond Ic”

AC operation, AC losses

- Simple wire in single transport or magnetization regime understood

Problem: how low should be the loss in the tape?

Depends on the application, e.g. in the case of a power transmission cable it should secure the electromagnetic loss below 1-2 W/m

- AC loss in cables: 1G reasonably understood, because the loss is large, in 2G is more sensitive to the structure. To utilize the potential of coated conductor and to minimize the ac loss of the cable, optimization of the cable architecture is necessary

AC loss in coils:

- Physical principles are understood but its application to devices is not straightforward, therefore it is necessary to make experiments on prototypes and test devices
- Challenges: transposition (twisting)

Quench and stability

- We still do not have good quench detection and protection for the 2G devices
- 3D quench model missing

Roebel cable: how narrow could be the tapes? W. Goldacker said they already succeeded with 2 mm

Joints

- No mechanical problems when using proper procedures

Mechanical performance

- Delamination is understood in the tape, but not in the device