

Tuesday morning session

1. Superconducting coils for fusion devices: R&D needs (E. Salpietro)
2. A Simple model for the prediction of quench point in cable in conduit conductors (A. Anghel)
3. Comparison between measurements and a full set of thermo hydraulic electro-magnetic code simulations for the ENEA stability experiment (M. Ciotti)
4. Analysis of current redistribution in cable-in-conduit conductor (C. Marinucci)
5. Local change of transport current in stabilized magnet systems at the normal zone front (E. Boxman)

The 1st paper,

“Superconducting coils for fusion devices: R&D needs”,
gives us a perspective for future fundamental R&D.

- Current status of big projects were reviewed.
 - LHD ... under operation
 - W-7X, KSTAR ... under construction
 - ITER-FEAT ... design study
 - ITER R&D; TFMC, CSMC, CS-insert
- Critical issues
- R&D strategy

Critical Issues

- a. Tcs, I_c , n , Ploss (strand and cable)
- b. Cable strain and current distribution
- c. Stability
- d. Quench propagation
- e. AC losses
- f. Joints
- g. Conductor cross section lay-out
- h. Nb_3Sn versus NbTi

R&D Strategy

1. Separate the effects to be tested
2. Develop interpretation codes
3. Develop advanced diagnostic
4. Assess the use of HT superconducting materials

The 2nd paper,
“A Simple model for the prediction of quench point in cable in conduit
conductors”,
are related to the following items.

Critical Issues

- a. T_{cs} , I_c , n , P_{loss} (strand and cable)

R&D Strategy

- (1. Separate the effects to be tested)

Prediction method
for the quench point parameters of CIC conductors

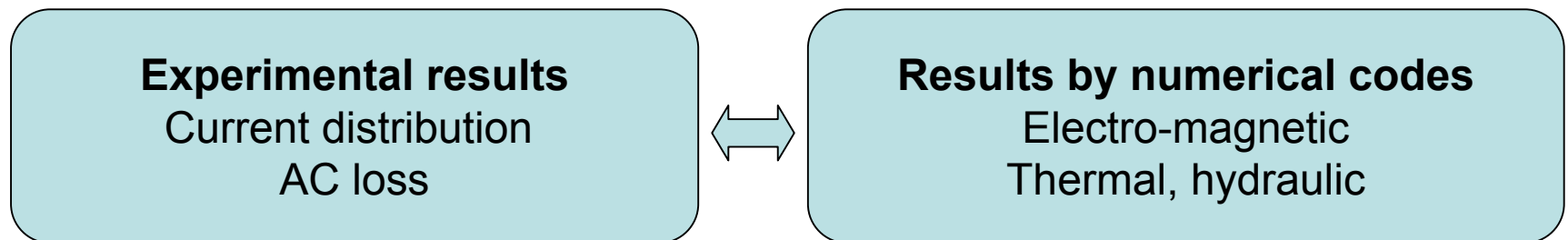
The 3rd and 4th papers, “Comparison between measurements and a full set of thermo hydraulic electro-magnetic code simulations for the ENEA stability experiment”, “Analysis of current redistribution in cable-in-conduit conductor” are related to the following items.

R&D Strategy

2.Develop interpretation codes, 3.Develop advanced diagnostic

Critical Issues

c.Quench propagation, d.AC losses



The 5th paper,

“Local change of transport current in stabilized magnet systems at the normal zone front ”,

are related to the following items.

Critical Issues

c. Stability, d. Quench propagation

R&D Strategy

(1. Separate the effects to be tested)

Experimental results

Quench propagation Aluminum stabilized conductor