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## **Wed-Mo-Po3.11-01 [88]: Quench analysis of no-insulation magnet using YBCO coated conductor tapes with copper cladding**

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No-insulation (NI) high-temperature superconductor (HTS) coil which have self-protecting feature when quench have been presented for several years, HTS magnet using NI technique also have been applied, however, the quench behavior need to be calculated and analyzed. With the charging delay of our magnet satisfied, YBCO coated conductor tapes with copper cladding are used which have better safety and heat stability. Usually the partial element equivalent circuit (PEEC) model is proposed for the numerical simulation of an NI HTS coil, but it often require substantial computation time especially as a NI magnet having many coils, so a simply circuit model with a single inductor with a resistor in series and a resistor in parallel is used for numerical simulation of the magnet which have four pancake coils in series with a yoke. A three-dimensional quench simulation of the magnet has been carried out in OPERA-quench, the current, voltage, temperature and normal zone propagation with respect to time are analyzed, the influence of the yoke is also discussed.

Index terms: Quench analysis, No-insulation, high-temperature superconductor coil.

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