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Test results about simple CDA+MIK quench detection method on EAST for ITER Superconducting CS Coils

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The test about simple CDA+MIK quench detection method implemented a total of about 100 charging runs on EAST in the past two years, aiming at verifying this new method whether apply it to ITER cs coils or not.This project is supported by the ITER Organization (IO).
To obtain this target, the whole instrumentation hardware have been developed and installed on EAST and used to generate experiment data.
It is real challenge to achieve the plasma discharge due to CS module triad connection configuration, the limitation of peak coil current &voltage,very high accuracy high voltage measurement etc.
In verification experiments , the low loop voltage plasma discharge with the assistance of the
electron cyclotron resonance frequency (ECRF) and low hybrid wave (LHW) heating for
pre-ionization and to following burn-through was the first accomplished successfully plasma scenarios with around 3 second and 250kA pulse plasma current.
Moreover the numerical quench detection model have been designed and the artificial signals
created through it should be verified with experimental signal .
The test have shown that CDA +MIK technology is applicable to the ITER cs coils as a backup method although the co-wound voltage tap sensor has obviously better noise rejection ratio.
But the sensitivity of this system should be improved greatly in order to meet experiment requirements for ITER operation in the future.
This paper introduces the test program, typical achieved operation, and the results of preliminary analysis.
Key words: CDA +MIK technology,EAST, verification experiments

Eligible for student paper award?

No

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