

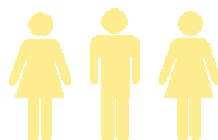
SEMINAIRE SACM

26

11 H 00 Harmut Ehmler
Wendelstein 7-X (Magnets and Cryostat)
IPP
Pièce 311, Bât.123

Juillet 2007

AC modeling and electrical tests for short circuit detection of the W7-X magnets



The impedance spectrum test is based on measuring the complex impedance over several decades of frequency. The results are compared to predictions of appropriate electrical equivalent circuits of coils in different production states or during cold test. When the resulting equivalent circuit is not too complicated the impedance can be represented by an analytic function. A more detailed analysis is performed with a network simulation code. The overall agreement of measured and calculated or simulated spectra is good. The main application of the analysis is the detection of short circuits. Two types of short circuits which appeared are presented and analyzed. The detection limit of the testing and analysis method is discussed. Other short circuit detection methods are discussed. As conclusion, the combination of high-voltage AC and low voltage impedance spectrum tests are ideal means to rule out short circuits in the W7-X coils.



NB : La présentation d'une carte d'identité ou d'un passeport est exigée à l'entrée du centre .
Tous les auditeurs extérieurs sont priés de prévenir à l'avance de leur visite : Martine OGER,
Tél. : 01 69 08 69 49 (UE : délai de 24h, hors UE : délai de 4 jours) .

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