

Arc suppression in Ion Cyclotron Heating experiments

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An undesirable feature of high power level ICRH heating operation is the frequent occurrence of voltage breakdowns in some part of the in-vessel launching structures. Active arc detection (usually performed by monitoring, some effect of an abrupt variations of the reflection coefficient at some point of the transmission system) and arc extinction, (by temporary total suppression of the input power) are necessary to prevent damages to the launching structure.

Both detection and suppression techniques need to be substantially improved to prevent severe equipment damage in future high power, ICRH long pulse applications.

In a previous paper [1] a new concept of arc detection/suppression, aiming at minimizing the energy deposited in the arc has been discussed. In this paper, the analysis of the effects of an arc in its different phases of evolution is performed and applications of the method to practical experimental cases are presented.

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