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Wed-Af-Po3.22-05 [83]: Trapped Field Charateristics of A HTS Magnet with Two Holes Using Four Magnetization Methods

Wednesday, 25 September 2019 14:00 (2 hours)

A Bitter-like high temperature superconducting (HTS) magnet stacked by RE (RE=rare earth)Ba-Cu-O annular plates and magnetized by flux pump is attractive in application of magnet operating in persistent mode (PCM). Its self- and mutual inductances is essential for calculation of stored energy which has significant something to do with its stability such as quench and recovery as well as protection measures. The analytical calculation of self- and mutual-inductances is obtained based on Modified Neumann's formula instead of the linear integral current with the surface integral current. Meanwhile, the self-inductance and mutual inductance matrices of the HTS magnet which could adjust the numbers of stacked annular plates automatically are also simulated by Matlab programming. It is shown that the analytical results are good agreement with the simulated ones. Key words: inductance, Matlab matrices, Neumann's formula, REBCO annular magnet

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