

Quadrupole Counter Mixing Choke Structure for the KEKB ARES Cavity, K. AKAI, N. AKASAKA, E. EZURA, T. KAGEYAMA, H. MIZUNO, F. NAITO, H. NAKANISHI, Y. TAKEUCHI, Y. YAMAZAKI, KEK; T. KOBAYASHI, Institute of Applied Physics, Tsukuba Univ. - The KEKB ARES cavity employs the choke-mode cavity as its accelerating part. The choke confines the field inside the cavity completely only when the cavity is made axially symmetric. In the case of ARES, the choke-mode cavity has a coupling slot to the coupling cavity and another slot for counterbalancing so that the field inside the cavity does not have the dipole component. In order to keep the quadrupole component from absorbed in the HOM absorber, the choke is deformed to have twofold symmetry. (Multimode component higher than the quadrupole cannot propagate to the HOM absorber because of the cut-off of the coaxial line.) Part of the monopole component is converted to quadrupole by the deformation, with which the quadrupole field propagating to the HOM absorber is cancelled. The performance of this choke was confirmed by measurement of a 1/5 scale Al cold model of ARES.