

**Design of HOM Power Absorber for the KEK B-Factory,** Y.H. CHIN, N. AKASAKA, KEK, C.-K. NG, SLAC - The Higher-Order-Mode (HOM) power deposition is one of most crucial problems in the KEK B-factory to achieve a total beam current of 2.6A at the Low Energy Ring (LER). The estimate shows that the HOM power of about 200 kW will be created in the arc section of LER by various beamline components in addition to that of 150 kW due to 20 RF cavities. Energy deposition will be enhanced at structures which can trap the wake fields. The largest concern is in the Interaction Point (IP) where the double-walled beryllium chamber can tolerate the heat deposition only up to 200 W due to the thermal stress. Two types of HOM power absorbers have been studied to protect those trapping structures and the IP region. One structure consists of a radial line connected a coaxial chamber where an absorbing material is housed. Other one has a absorbing material directly attached to the inner surface of the copper chamber. The absorbing material is segmented to a dozen pieces of pencil shape, each being tilted by 30 degrees for good couplings with both TM and TE modes. Calculations with MAFIA and HFSS show that they have absorbing efficiencies more than 10% and the loss factors of about 0.1 V/pC.