

**Higher Order Mode Damping of the CERN PS 40 MHz Cavity**, E. JENSEN, CERN; R. HOHBACH, A.K. MITRA and R.L. POIRIER, TRIUMF - TRIUMF has built a full scale copper lined wooden model of the 40 MHz CERN cavity for the PS upgrade program for LHC. SUPERFISH was used to design the wooden model so that the field patterns of the fundamental accelerating mode as well as the higher order modes were in close agreement with the modes calculated by MAFIA on the CERN all metal cavity. Extensive measurements have been done to identify the monopole and the dipole modes of the cavity model. The design goal was to damp the impedance of all the higher order modes up to 1 GHz to less than 1 k $\Omega$  and not attenuate the shunt impedance of the fundamental mode by more than 5%. Three  $\lambda/4$  antennae terminated with 50  $\Omega$  were employed to damp all the monopole modes up to 850 MHz. One of the antennae uses an external matching circuit. The monopole dampers are being fabricated at TRIUMF to be tested on the CERN cavity with 300 kV and 600 kV gap voltage. MAFIA calculations on the CERN cavity show that most dipole modes can be damped by not copper plating a 30 cm radius part on the inside of the gap capacitor of the cavity. This enables the resistivity of the exposed stainless steel surface to be used to achieve damping.