

Applying HOM-Damping Schemes to a 36-Cell Test Structure,

M. KURZ, W.F.O. MÜLLER, U. NIERMANN, P. HÜLSMANN, H. KLEIN, Univ. Frankfurt; U. VAN RIENEN^{*}, O. PODEBRAD, T. WEILAND, TH-DARMSTADT; M. DOHLUS, DESY - In a multibunch collider scheme deterioration of the beam emittance due to long range wakefields is a severe problem to be solved. There is evidence that detuning the accelerator structure with respect to HOM-modes is not sufficient in all cases. Therefore it seems worthwhile to study single and distributed HOM-damping concepts as complementary means for emittance preservation. In order to study the physics of trapped higher order modes and in order to validate various computer codes a detuned 36 cell test structure has been designed and built. The physical dimensions of this structure were chosen to show strong mode trapping. Thus it is an appropriate object to study the effects which have to be expected in a real constant gradient structure. Theoretical simulation results and measurements are presented.

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