

**Analytical Formulae for the Loss Factors and Wake fields of a Rectangular Accelerating Structure,**  
J. GAO, LAL/Orsay, France - Wakefields in a rectangular accelerating structure can be calculated in time domain by directly solving Maxwell's equations by a 3D code. In this paper we will give analytical formulae to calculate the synchronous modes' loss factors. From these analytical formulae one can get the delta function wakefields. The relations between the loss factors (wakefields) and the structure geometrical dimensions are well established. These analytical expressions of loss factors can be used also in a single rectangular resonant cavity. The potential application of a rectangular accelerating structure is to accelerate a flat beam in a linear collider.