

The Transverse Wakefields in the TESLA-FEL Transfer Line, A. NOVOKHATSKI, M. TIMM, T. WEILAND - For TESLA-FEL operation the electron beam is extracted from the regular accelerating structure at the desired energy level and then transferred by a long transfer line to the experimental hall. It is required that longitudinal and transverse emittance be kept small. Wakefields, excited from various devices e.g. pumping holes, quadrupole tapers, beam position monitors can cause emittance growth. In addition the wakefields of the short bunches due to the surface roughness in this very long line can give large contribution. In this Paper the transverse Wakefields in a vacuum chamber with small protrusions on the surface are calculated for short bunches and an analytical expression for very short bunches is presented. The effect of this wakefields on the beam emittance growth in the TESLA-FEL transfer line is discussed.