

A Photoelectron Source for the Study of Smith-Purcell Radiation, M. DUMITRU, T. KORMANN, G. KORSCHINEK, C. STANSION, Techn. University, Munich; G. DOUCAS, Univ. Of Oxford; M.F. KIMMITT, Univ. Of Essex - The interaction of an electron beam with a metallic grating surface produces an electromagnetic wave known as Smith-Purcell radiation. This phenomenon could lead to more compact FEL's, provided that strong coupling between beam and surface can be achieved. A crucial factor in this respect is the emittance of the beam. We present the initial measurements of the emittance of the beam produced by a rather simple and robust photo electron source, which is being installed in the terminal of a 3 MV Van de Graaff for a detailed investigation of the Smith-Purcell radiation in the relativistic regime.