

**Experimental Investigation of Cold-Cathode Magnetron Gun**, A.N. DOVBNYA, V.V. ZAKUTIN, V.F. ZHIGLO, N.G. RESHETNYAK, V.P. ROMASKO, National Science Center, Kharkov Institute of Physics & Technology (KFTI) - This paper presents experimental regulates of electron beam generation in a cold-cathode magnetron gun, operating in secondary-emission mode. The research was performed on an experimental facility which contained a negative HV-pulse Source, the pulse of amplitude  $U \approx 40$  kV and width  $0.5-2.0 \mu\text{s}$  being feed on to a finger-like copper cathode, while the anode, made from a stainless steel tube 35 mm in diameter, 250 mm long, was grounded via resistor. The gun was placed in a pulsed magnetic field of the strength  $H \approx 5.000$  Oe. The annular transverse cross section beam having outer diameter 9 mm; energy - 32 KeV, current - 40 A, duration -  $2 \mu\text{s}$  was obtained. Upon increasing the pulse duration, it was observed the current growth which is associated with gas desorption from cathode. Obtained results demonstrate the feasibility on construction of a powerful cold-cathode electron gun with long pulse durations.