DEVELOPMENT OF THE HERMES III ACCELERATOR AS A SHORT-PULSE RADIATION SOURCE*

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The HERMES III accelerator[1,2] at Sandia National Laboratories generates a 19-MV, 700-kA electron beam which is being developed as a short pulse bremsstrahlung radiation source. A gas-filled drift cell has been employed previously to efficiently transport and temporally control the electron beam.[3] This concept is being revisited in order to generate a radiation pulse with a rise-time and width that is significantly reduced from the injected electron beam. Progress in the diode and gas cell development are presented.

1. J. A. Halbleib, T. W. L. Sanford and J. W. Poukey, "Radiation environment of HERMES III", IEEE Trans. Nucl. Sci. 35, 1988, pp. 1282-1287.
2. J. J. Ramirez, *et a*l., "Performance of the HERMES-III gamma ray simulator", in Proc. of the 7th International Pulsed Power Conference, vol. 1, 1989, pp. 26.
3. T. W. L. Sanford, "High-power electron-beam transport in long gas cells from 10-3 to 103 Torr nitrogen", Phys. Plasmas 2, 1995, pp. 2539-2546.

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