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Title

Electron Beam Emittance Measurements Using a Pepper-Pot Apparatus

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Electron Beam Emittance Measurements Using a Pepper-Pot Apparatus,* C. KIM and J. BENGTTSSON, Lawrence Berkeley Laboratory — The source of electrons for the Advanced Light Source facility is a conventional gridded thermionic gun that produces high charge (up to 5nC), short pulse (2 ns) electron bunches with an energy of 120 keV. A key parameter of the source is the transverse emittance of the electron beam. This has been measured by a pepper-pot / scintillator screen apparatus located some 2 m from the gun in the gun-to-linac transport line. In this paper we give details of the apparatus, present the results and compare these results with simulations based on the space-charge-dominated beam transport code PARMELA.

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