

Secondary Emission Grids for Low and High Energy Electron Beams,

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- Transverse beam profile monitors using secondary electron emission grids have been studied and constructed for the TESLA Test Facility (TTF). For the low energy beam (250 keV), implying short stopping ranges and high energy deposition, titanium strips of only 12 microns thickness have been chosen. An SEM-grid with 32 strips of 300 microns width and 400 microns separation has been put on the first part of the TTF injector. Secondary emission current is integrated and digitised. Data analysis with standard VME provides beam profiles and widths (fwhm, rms,...) which are sent to an EPICS data base to determine the beam emittance. The latter can be analysed within the macropulse through a 100 ns step gating system. Other SEM-grids designed for energy dispersion measurements at 10 and 500 MeV have been constructed. Two grids made of 40 wires of 20 micrometers diameter and 2 and 0.75 mm spacing respectively are provided with the same readout system as for the low energy grid. A description of the grids with their electronic readout system is given here. First results with the 250 keV beam obtained at Saclay are also presented.