

Thermal simulation for wire-scanners

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Low-density materials as targets for wire scanners demonstrate favorable thermal behavior. Simulations with the PyTT package are carried out to study the secondary emission yield and the maximum temperature for carbon nanotube and carbon fibre wire for the PSI Main Ring Cyclotron and HL-LHC beams. These results show that with low-density materials, the maximum temperature reached is lower due to the smaller amount of material and, for the PSI beam, the thermionic emission current, which represents a major perturbation to the measured signal, is completely suppressed.

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