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Observation of X-Ray Transition Radiation from Relativistic Electrons Passing a Stack of Plates

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The results of experimental observations of X-ray transition radiation (with energies ranging from 10 to 200 keV) from a stack of thin aluminum foils (10-20 μm thick), separated by layers of either Teflon or air (50-100 μm thick), are presented. The experiment was conducted using the electron beam of the DESY Test Beam Facility at energies of 1.0 and 2.4 GeV. The spectral-angular distribution of radiation from electrons passing perpendicularly through the target was investigated. Additionally, the case where the angle of incidence on the target varied by about one degree from the normal axis was studied. The obtained results are compared with previous experimental data and theoretical estimates.

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