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Laue X-ray spectrograph for the 200-TW Trident Laser NALIN VUTISALCHAVAKUL, JAMES COBBLE, JONATHAN WORKMAN, Ohio Wesleyan University — With the 200-TW laser at the Trident Laser Facility, experiments on x-ray backlighting were performed. The sub-ps short pulse laser with energy up to 100 J can be shot on targets with different atomic number. The focused laser beam has intensities up to 10^{21} W/cm². The high energy laser interacted with the targets, producing X rays due to K-shell emission. Among other diagnostic devices, a Laue X-ray spectrograph was used to record the x-ray spectrum, which showed emission lines and bremsstrahlung radiation. The Laue spectrograph uses a LiF(200) crystal to disperse the x-ray spectra with a bandpass of 17-70 keV. The spectra were recorded using Fuji image plates. The Laue instrument was designed to include a tungsten shield in the front, a magnetic trap, and a light trap to reduce background noise. Ka lines of Mo, Ag, and Sn were observed.

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