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Time resolved visible spectroscopy of surface plasma radiation[1]
TASHA GOODRICH, THOMAS AWE, STEPHAN FUELLING, RICHARD SIEMON, University of Nevada, Reno — Experiments at UNR demonstrate that interesting multiply ionized aluminum plasma (T=1-30 eV, n $\sim 10^{18}$ cm^{-3}, Z ~ 3) can be created on the surface of mm-diameter aluminum rods by MA pulses of current. Surface temperature has been estimated by measuring the surface brightness in the green part of the visible spectrum (Awe et al., this conference). To investigate the spectral distribution throughout the visible region, which should vary as one over wavelength to the fourth power for temperatures above about 2 eV, a Jobin-Yvon f/2 spectrometer has been coupled with a linear array of silicon photodiodes. This instrument has spectral resolution of 30 nm on each of ten array elements covering the spectrum between 400 – 700 nm and uses a Nikon lens/fiber optic collection system to enable observation of temperatures ranging from 1-30 eV. Experimental data with comparisons to the blackbody spectrum will be presented.

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