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Long pulse Soft X-ray Emission from Laser Generated Irradiated Gold Foils JOSHUA DAVIS, University of Michigan, YECHIEL FRANK, EREZ RAICHER, MOSHE FRAENKEL, Soreq Nuclear Research Center, Israel, PAUL KEITER, SALLEE KLEIN, R. P. DRAKE, University of Michigan, DOV SHVARTS, University of Micihgan — Long pulse soft x-ray sources (SXS) allow for flexibility in high-energy-density experimental designs by providing a means of driving matter to the high temperatures needed, for example to study radiation waves in different materials. SXSs can be made by using lasers to heat a high-Z thin foil, which then acts as a quasi-blackbody emitter. Previous studies of the x-ray emission characteristics of gold foils have focused on laser pulses of ˜1ns or less. We performed experiments using a 6.0ns laser pulse with energy of 2kJ on the Omega-60 system to generate and characterize multi-ns laser heated Au foils of thicknesses between 0.5-2.0μ m. We measured the 2D spatial profile of the emission with a soft x-ray camera and the time history of the emission with the Dante photodiode array . Effective temperatures for the emission were then calculated using the Dante measurements. Discussion of experimental results and a comparison with 1-D Rad-Hydro NLTE simulations [see Y. Frank et. al, Phys. Rev. E 92, 053111 (2015)] will be presented.

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