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Electron energy transport in recent petawatt laser plasma interaction experiments JAMES GREEN, Central Laser Facility, CCLRC Rutherford Appleton Laboratory, UK — Energy transport experiments have been performed using the Vulcan petawatt laser facility at the Rutherford Appleton Laboratory. Electron transport has been investigated by irradiating plain Cu, Al, and Al-Cu-Al sandwich targets, diagnosed using transverse probing images and K-alpha rear-side imaging. Comparisons will be shown with the global plasma expansion of thin foil targets observed in a transverse probe after the interaction pulse. It is likely that the electron refluxing pattern can be inferred from transverse probe images of thin Cu foils. Divergent flow has been observed from the K-alpha images and will be compared with the flow pattern observed with transverse optical probing. Computational modeling of the experimental results, incorporating density profiles measured interferometrically during the experiment will also be presented.

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